RADIO

REG. U. S. PAT. OFF.

THE NATIONAL TRADE MAGAZINE

SEPTEMBER, 1931

Brunswick's Complete Line...

BRUNSWICK'S MERCHANDISING PLANS

Model 25—8225 complete
Short and long wave receiver

will conquer today's job and make tomorrow's sales easier and still more profitable.

Model 11
$79.50 complete

MORE Brunswick Radios will be sold this year than ever before... Advance orders forecast this... And dealers who concentrate on the complete Brunswick line ($39.50 to $225) will make greater profits than heretofore... If our 1932 merchandising and sales plans have not

★ ★ ★ yet been presented to you — write!... ★ ★

MODEL 25...Highboy cabinet of butt walnut... Brunswick's supreme achievement in cabinet and chassis design... Receives broadcasts on low-wave length or long-wave length enabling users to "listen-in" on programs broadcast anywhere on the face of the earth... 11-tube Superheterodyne, all modern radio developments incorporated. List price, complete with Brunswick Tubes **$225**

MODEL 11...Table model or midget type. Compact 7-tube Superheterodyne circuit with the latest Screen Grid, Variable-Mu, and Pentode Tubes...9" Dynamic Speaker, Uni-Selector, Color Tone Control, Full Range Volume Control, Turret Type Tuning Condenser, Power Detector. List Price, complete with Brunswick Tubes **$79.50**

BRUNSWICK RADIO CORPORATION—*Division of Warner Bros. Pictures, Inc.*—NEW YORK, CHICAGO, TORONTO

BRUNSWICK RADIO

Your Star Salesman!

THE JANETTE ROTARY CONVERTER

Sells Hundreds of A. C. Sets for You in D. C. Districts

The extremely low price of the New Janette Rotary Converter is turning thousands of D. C. users into buyers of A. C. radios. Radio dealers all over the country are cashing in on the big new market now opened up in nearly all rural districts and in city D. C. districts. And the reason is that *now* you can offer a set and a converter at a price anyone can afford to pay.

This new Janette Converter is *Fully Guaranteed*—it is built up to the same high standards as all Janette products which means that you can guarantee perfect performance from every set you sell.

Send in the coupon today for full information and liberal dealer discounts.

IMPORTANT NOTICE

Janette Converters have never been, and are not being offered to the consuming public at a cut price. and are sold only through regular radio sales channels.

JANETTE MFG. CO.

Lombard Smith Co., 328 N. San Pedro Ave., Los Angeles, Calif.
Singer Bldg., 149 Broadway, New York, N. Y. Real Estate Trust Bldg., Philadelphia, Pa.
Harrison Sales Co., 314 Ninth Ave., N. Seattle, Wash.
557 West Monroe St., Chicago, Ill.

JANETTE MFG. CO.
557 W. MONROE ST.
CHICAGO, ILL.

Please send me full information and discount on your Type CA-20-F Rotary Converter for ☐ 32 Volts, ☐ 115 Volts, ☐ 230 Volts.

Name.....

Address.....

City & State.....

ESTABLISHED 1917

RADIO

REGISTERED U. S. PAT. OFF.

THE NATIONAL TRADE MAGAZINE

Volume 13, Number 9 — **September, 1931**

CONTENTS

Quality Paramount

REGARDLESS of price, quality is always a paramount issue in any sound producing instrument.

Radio manufacturers who want to enhance the sales value of their instruments at approximately their present cost should write us for samples.

Wright-DeCoster
Infant Chassis

The Infant is made for the manufacturers wanting quality in a small sized speaker. It is capable of handling 245 tubes in push-pull and our laboratory tests prove it to be a very efficient speaker indeed.

These Reproducers are the Same High Quality as is Maintained in all

Wright-DeCoster Speakers

The reputation of Wright-DeCoster's high quality gives the added prestige that assists your dealers and their salesmen in closing sales.

Wright-DeCoster
Juvenile Chassis

As it has a maximum power handling capacity of 6 watts the Juvenile is suitable for installation in practically all sound reproducing instruments to be used indoors.

THE SPEAKER OF THE YEAR

Write for complete information and address of nearest sales office.

Wright-DeCoster, Inc.

Main Office and Factories
SAINT PAUL, MINN.

Export Department
THE M. SIMON & SON CO., NEW YORK

Cable Address: "SIMONTRICE"

ANNOUNCING!

THE GREATEST TESTING INSTRUMENT IN HISTORY!

Smaller, Lighter, Handier

See the Model AAA1 at the New York Show . . . New York demonstration rooms, 130 West 42nd Street. Also at Philadelphia Show—M & H Sporting Goods Co.

SUPREME
Testing Instruments
"SUPREME BY COMPARISON"

AT LAST—the testing instrument modern service men have awaited . . . and looked to "Supreme" to create. Conceived months ago, Model AAA1 is now offered, tested and proven, under most exacting standards. Presented to the Radio service world GUARANTEED as the most inclusive, the most positive, the most advanced—and withal the easiest to handle—radio testing equipment in history.

A Super Diagnometer with meter ranges to 2500 volts; a Completely Shielded Oscillator calibrated for every frequency between 90 and 1500 kilocycles; Tube Testing and Ohm-Megohmeter features never before incorporated in any service instrument. 4 instruments in 1 at the price of one! Space won't permit, words can't tell, the complete amazing narrative of this Supreme engineering triumph. All jobbers will soon be stocked, but the ones listed in panel to right are those selected for the

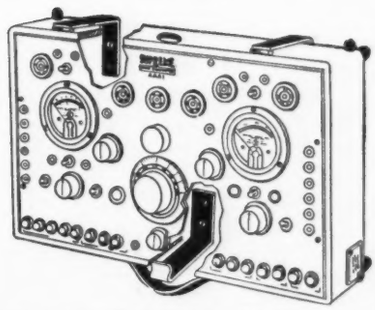
re-showing of this sensational new instrument on September 1st, and *now* have he 1932 Model DIAGNOMETER ON DISPLAY AND AVAILABLE FOR DEMONSTRATION. Go see it today. It may be possible for you to . . .

get yours FREE!

Disinterested judges will award a NEW Model AAA1 to the person who writes the best letter on the subject "WHY I PREFER A SUPREME DIAGNOMETER—MODEL AAA1—FOR MODERN SERVICE." Everyone is eligible. Send the coupon below . . . today . . . for complete contest rules. Ask your jobber . . . or one of those listed here . . . to demonstrate. Hurry—contest closes October 15th, 1931. See the DIAGNOMETER. Write us for contest rules.

QUICK FACTS
on
"The Greatest Testing Instrument In History!"

1. METERS EMPLOYED
   Copper oxide rectifier type Multi-meter providing the following ranges:
   Analytical A.C. and D.C. voltage ranges of 0/2.5/10/25/100/250/1000 volts available in all circuits through analyzer plug.
   Both A.C. and D.C. voltages measured at 1000-ohms per volt sensitivity.
   D.C. voltage ranges of 0/40 and 0/200 volts at 2700 ohms per volt available for external use in servicing automotive and aeroplane radio installations.
   An A.C. and D.C. voltage range of 0/2500 volts available externally for servicing public address, power amplifier and ameteur transmitter installations.
   All analytical A.C. and D.C. voltage ranges available through pin jacks for external use.
   Meter glass replaceable without meter removal.
   A.C. and D.C. Milliampere ranges of 0/2.5/10/25/100/250 available for analytical or external use.
   An external A.C. or D.C. current range of 0/2.5 amps available.
   Output meter for synchronizing, peaking.
   All A.C. and D.C. voltage and current ranges controlled by a single tandem "Scale Selector" switch.
   Withstands 3000% voltage overload.
2. D. C. MILLIAMMETER of 0/8/80 ma. range for plate current analytical readings and tube testing.
   D.C. Milliammeter always connected in plate circuit of stage under analysis to prevent breaking of high voltage circuits and resultant dangerous surges.
   Provides simultaneous plate current readings and all other socket analytical readings.
3. UNIVERSAL ANALYZER PLUG, 5 prong, with snap catch 4 prong adapter.
4. Current analysis off all circuits of every type of receiver, including superheterodyne intermediate, tuned radio frequency, resistance coupled amplifier, power detectors, and power pentode, Output stages. Services A.C. and D.C. receivers.
5. Analysis of power supply through rectifier tube socket.
6. DETACHABLE ANALYZER CABLE & PLUG.
7. Circuit provided for analysis of contemplated radio frequency, pentode tubes and circuits.
8. MULTI-METER disconnected from all analytical and tube checker circuits for maximum protection until proper push button is depressed.
9. Non-locking push buttons used.
10. Insulated pin jack connections for external use of all meter ranges and test circuits.
11. Readily obtainable 3 cell flash light battery employed for continuity testing, resistance measurements, and tube testing from radio socket power where A.C. is not available.
12. Flash light battery readily removable from its compartment and is protected from accidental shorts and loose connections.
13. Resistance ranges with zero corrector.
14. Continuity 0/5000/500,000 ohms and 0/25 megohms.
15. Capacity measurements. Condenser tests at 250 volts D.C.
16. Self-contained A.C. line power supply, for tube testing, powering oscillators, capacity testing, etc.
    A.C. power supply transformer provided with a primary selector for adjusting to line potentials between 100 and 240 volts. Standard instruments furnished for 50-60 cycle operation. Other frequencies available.
17. Tests all tubes from A.C. line supply, including power pentode, variable-mu and 2-volt tubes.
    Selector switch for supplying proper potentials to 5 tube testing sockets.
    Oscillation test of amplifier tubes provided for matching purposes.
    Gas test provided for amplifier tubes to indicate gas content.
    Cathode-heater leakage test.
    Tests both plates of full wave rectifier tubes.
    Complete tube testing tables furnished.
    Pilot light indicates when tube testing circuits are in operation.
    All potentials utilized in tube testing circuits available for external use.
18. Completely shielded modulated and attenuated OSCILLATOR provided for synchronizing, balancing and neutralizing tuned r.f. stages, peaking and "flat-topping" intermediate frequency stages, testing, etc.
    Oscillator operates from A.C. line.
    No A.C. line leakage of feed-back.
    Completely controlled output.
    Individually calibrated for all frequencies of 90 to 1500 K.C. Higher frequency calibrations available at additional cost.
    Harmonic tuning principal utilized.
    All Oscillator potentials completely isolated, from other parts of DIAGNOMETER.
    Oscillator is modulated at the frequency of power supply system.
    Vernier tuning dial provided for obtaining fine adjustments.
    Type '31 tube is used.
    Shielded dummy antennae provided—no signal dissipation except through antennae.
    Individual calibration chart furnished.
19. Copper oxide multimeter, connected in series with self-contained condenser, provides 6 ranges of output measurements.
20. Maximum protection to meters and circuits. Power supply circuits provided with fuses and milliammeter circuits provided with fuses to protect milliammeter.
21. All parts of DIAGNOMETER thoroughly insulated so that no exposed contacts exist on panel.
22. Housed in hardwood carrying case, size 18⅜ x 11¼ x 6⅞, slip hinge cover—adequate compartments for accessories and small tools.
23. All necessary accessories provided, including analyzer plug and cable, power supply plug and cable (both detachable from DIAGNOMETER) Output adapters, and test probes. Complete instruction book accompanies each instrument, as well as an 85 page booklet of radio data.



The "last word" in a portable compact, complete laboratory. A combined test panel and portable laboratory—mounts on the wall as easily as removing the lid.

PREVIEW JOBBERS

ALABAMA

MOBILE:
McGowin Lyon Hdwe. & Supply Co.

CALIFORNIA

LOS ANGELES:
Kierulff & Ravenscroft—137 W. 17th St.
Leo J. Meyberg Company—950 South Flower St
Radio Supply Co.—912-14 South Broadway.

SAN FRANCISCO:
Kierulff & Ravenscroft—121 Ninth St.
Leo J. Meyberg Co.—70 Tenth St.

COLORADO

DENVER:
General Elec. Supply Corp.—1433 Lawrence

INDIANA

INDIANAPOLIS:
Kruse Radio, Inc.—29-33 W. Ohio St.

LOUISIANA

NEW ORLEANS:
Electrical Supply Company—201 Magazine St.

MISSOURI

ST. LOUIS:
Van-Ashe Radio Co.—10th and Walnut Sts.

NEW YORK

NEW YORK CITY:
Royal-Eastern Elec. Supply Co.—16-18 W. 22nd St
Sun Radio Co.—64 Vesey St.
Times Appliance Co.—333 West 52nd St.
Wholesale Radio Service Co., Inc.—36-38 Vesey St.

OREGON

PORTLAND:
Wedel Company, Inc.—443 Washington St.

PENNSYLVANIA

PHILADELPHIA:
M & H Sporting Goods Co.—312 Market St.

TENNESSEE

MEMPHIS:
Orgill Bros. & Company—505-515 Tennessee St.

TEXAS

SAN ANTONIO:
Southern Equipment Company

WASHINGTON

SEATTLE:
Harper-Meggee, Inc.—4th and Blanchard
Wedel Company, Inc.—520 Second Avenue

SPOKANE:
Spokane Radio Company, Inc.

WISCONSIN

SHEBOYGAN:
J. J. Koepsell Company

SUPREME INSTRUMENTS CORP.
415 Supreme Bldg., Greenwood, Miss.

Gentlemen:

Please send me complete rules and regulations on the contest "Why I Prefer a Supreme Diagnometer Model AAA1—For Modern Service."

Name.....

Address.....

City.....*State*.....

Name of Jobber.....

City.....*State*.....

This may be your "supremely" lucky day!

MAIL YOUR COUPON NOW

SUPREME INSTRUMENTS CORP.
415 SUPREME BLDG., GREENWOOD, MISS.
Distributors in all principal Cities
Foreign Division: 130 West 42nd St., New York City
Cable Address: LOPREH, New York

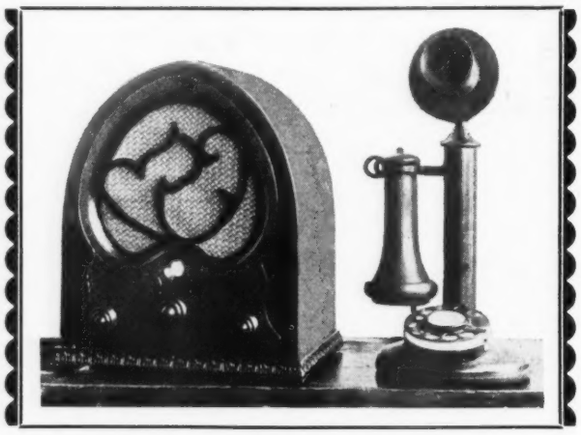
Paramount Dealers Are Making Money

Sold Direct to Dealers at a Net Price of

$13.95 CASH WITH ORDER

Complete with Arcturus Tubes

$12.95 in quantities of 12



Sold Direct to Dealers at a Net Price of

$13.95 CASH WITH ORDER

Complete with Arcturus Tubes

$12.95 in quantities of 12

PARAMOUNT "KEWPIE"
Retail Price $29.95

The Smallest Radio Made

Size 9⅜" High, 7½" Wide (inside measurements)

1932 FEATURES - - - SELL ON SIGHT

1 Pentode Tubes
Equal to 2-245 plus 1-227. This radio, smallest in size, incorporates the new pentode tube.

2 Full Dynamic Speaker
Perfect tone quality.

3 Screen Grid Circuit
Using 2 screen grid tubes to their utmost efficiency.

4 Tone Control
The sales talking point of 1931. We use the new full range control.

5 Selectivity Plus Distance
We have reports of distance of 1500 miles.

6 Quality All Through
Steel chassis, cadmium plated, oversized power transformers (shielded), heavy service resistors, electrolytic, self-healing filter condenser. Cornell oversized bypass condenser and many features found only in high priced sets.

Fully Guaranteed for Three Months

Coming . . .

An All-Wave Superheterodyne Midget

WORLD-WIDE RECEPTION

$79.50 Retail Price

ROME . . . LONDON . . . PARIS
SOUTH AFRICA

Nine Tubes . . Exceptional Distance

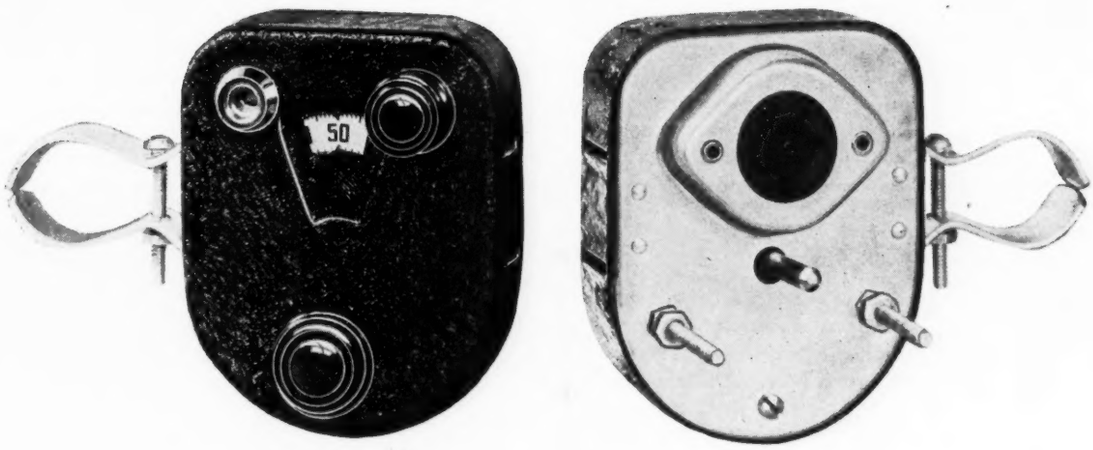
$79.50 Retail Price

ONLY ONE DIAL TO TUNE — *NO COILS TO CHANGE*

Member of Los Angeles Chamber of Commerce

LOS ANGELES RADIO MFG. CO.
3681 So. San Pedro Street
Los Angeles, Calif.

Manufacturers of Quality Radios Since 1925



CARTROLA

Automatic Control Unit

HERE is the *quality* remote control unit for automobile radio, for motor boat and for other purposes. Here is the control unit *priced* to sell. A beautiful unit in appearance and a ruggedly constructed mechanism built for most severe service. Complete with Pilot Light and Volume Control. Note the simplicity of design and the beauty of appearance. This CARTROLA *Automatic* Control Unit has already found its way into many prominent manufacturing plants where auto radio sets are being built. A wide demand has been created for a $7 unit. Here it is. The usual trade prices are allowed to manufacturers, distributors, dealers, service stations, etc. Distributors everywhere are wanted *immediately*. Territory is now being assigned.

List Price

$7.00

Specifications

Finishes: Chromium, Black or Crystalline. Complete with Pilot Light, Mounting Socket, Volume Control, Steering Wheel Bracket, Lock and Keys. Note extreme simplicity of the mounting device. Wire for samples. Deliveries made promptly.

Manufacturers, Jobbers, Service Stations, Dealers WRITE!

R. J. NOEL CO.

National Distributors

1441 WEST JEFFERSON STREET, , LOS ANGELES, CALIFORNIA

Guide to New Radio Products

Here are presented the newest products of nationally known manufacturers. This Buyers' Guide will help you in your selection of new things to sell. Radio and allied merchandise will be displayed in these columns each month. Copy for October issue should reach the publisher by October 1st. Write for rates.

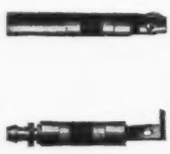
Flechtheim

Filter condensers for replacement purpose and for general service work. A complete line of all standard and special capacities available from stock. Write immediately for catalog showing all of the newest Flechtheim products. *The A. M. Flechtheim & Co., Inc., 136 Liberty St., New York City, N. Y.*

Ray-O-Vac

A new flashlight kit suitable for dealer counter display. Fast selling side-line for any store. Six standard Ray-O-Vac flashlights in carton with attractive display card. *French Battery & Carbon Co., Madison, Wisconsin.*

Lynch Mfg. Co.

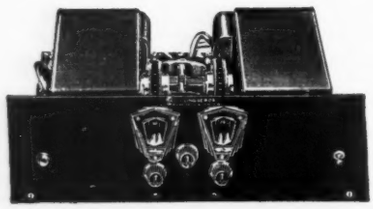


Two new type metallized resistors for connection to each spark plug and for distributor interference elimination. Both for use in auto radio installation. Heavy, rugged and capable of withstanding mechanical shock. Moisture-proofed. *Lynch Mfg. Co., Inc., 1775 Broadway, New York, N. Y.*

Electric Clock Corporation

Alarm Clock. 110 volt AC. Either 50 or 60 cycle. Bakelite case. Sweep second hand. $5.95 list. 25 year written guarantee. Also a new kitchen clock at $2.98 list and a small desk or table clock for $2.98. *Electric Clock Corporation, Chicago, Ill.*

Insuline Corporation



The I. C. A. "Conqueror," for AC or battery operation. 14-600 meters. Plug-in coils for all wave Power pack for A.C. bands. List $65.00. model $34.00. *Insuline Corp., 23 Park Place, New York.*

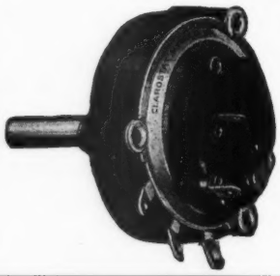
International Resistence Co.

Motor Radio Suppressors for spark plugs and distributors. Moisture-proofed, impregnated with special compound to withstand all weather conditions. Descriptive matter on request from *International Resistance Co., 2006 Chestnut St., Philadelphia, Pa.*

Ward Leonard

Ribflex Vitrohm Resistors. Metal alloy resistance ribbon, reflexed, wound on edge on ceramic tube. Banded on each end with heavy duty terminals. Entire unit covered with fired-on vitreous enamel. Available in single units with values of from .04 to 10 ohms. *Ward Leonard Co., Mount Vernon, New York.*

Clarostat Controls

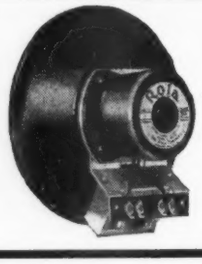


Built-In Switch and Insulated shaft in Clarostat Controls in both the genuine wire wound units and the graphite element units. Write for complete descriptive information. *Clarostat Mfg. Co., 285 North 6th St., Brooklyn, N. Y.*

"PRONGETTE" Contact Cleaner

Just out. Steel reamer and cleaner instantly cleans tube prongs and socket contacts. $1.50. *Bradley Radio Co., 1062 Howard St., San Francisco.*

Rola Speakers



New electrodynamics for midget sets of all sizes. Complete specifications can be secured from *The Rola Co., Cleveland, Ohio.*

HERE IT IS!

THE NATIONAL AIRWAYS

AUTO RADIO

Sensational

7-TUBE PENTODE SCREEN GRID

DUO-AUTOMATIC VOLUME CONTROL

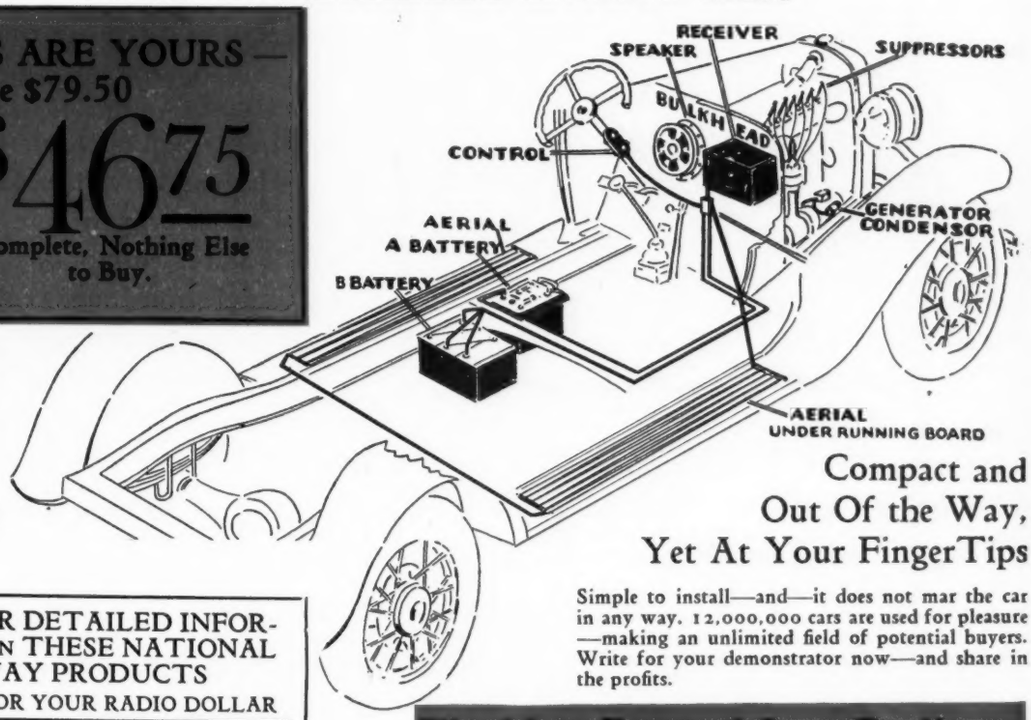
OUT-PERFORMS, OUT-DEMONSTRATES, OUT-DISTANCES ANY OTHER

EASILY INSTALLED IN ANY CAR

— BIG PROFITS ARE YOURS —
List Price $79.50

Dealers Net Price **$46.75**

Complete, Nothing Else to Buy.



MAIL IN YOUR ORDER TODAY!

Compact and Out Of the Way, Yet At Your Finger Tips

Simple to install—and—it does not mar the car in any way. 12,000,000 cars are used for pleasure —making an unlimited field of potential buyers. Write for your demonstrator now—and share in the profits.

WRITE FOR DETAILED INFORMATION ON THESE NATIONAL AIRWAY PRODUCTS
THE MOST FOR YOUR RADIO DOLLAR

NATIONAL AIRWAY *GRANDFATHER* Clock Radio LIST PRICE $79.50 *Dealers Net Price* $46.75 Complete including Tubes ready to operate	NATIONAL AIRWAY Console Radio LIST PRICE $59.50 *Dealers Net Price* $35.00 Complete including Tubes ready to operate
NATIONAL AIRWAY Midget Radio LIST PRICE $39.50 *Dealers Net Price* $23.20 Complete including Tubes ready to operate	NATIONAL AIRWAY Peewee Radio LIST PRICE $29.50 *Dealers Net Price* $17.35 Complete including Tubes ready to operate

MANUFACTURERS OF NATIONAL POLICE RADIOS

The Most Rugged Auto Radio:

Chassis fully protected against all electrical disturbances, three tuned stages, two stages Audio; 3 No. 336 Screen Grid Tubes, 2 No. 337 Amplifiers and 2 Pentodes for output; in sturdy housing, shock proof, dust, water and oil proof. The speaker is of electro-dynamic type, especially designed for National Airway Auto Radio. Resistors and condensers are supplied for eliminating motor car noises.

If car is not factory equipped with aerial installation, a simple arrangement of aerial wires can be made beneath the running boards.

"A" BATTERY POWER TAKEN FROM REGULAR AUTOMOBILE BATTERY

"B" Batteries are single unit cased in steel container, thoroughly protected against dirt and moisture, mounted beneath floor boards.

Don't be fooled about price—*You can't buy a better AUTO RADIO at any price.*

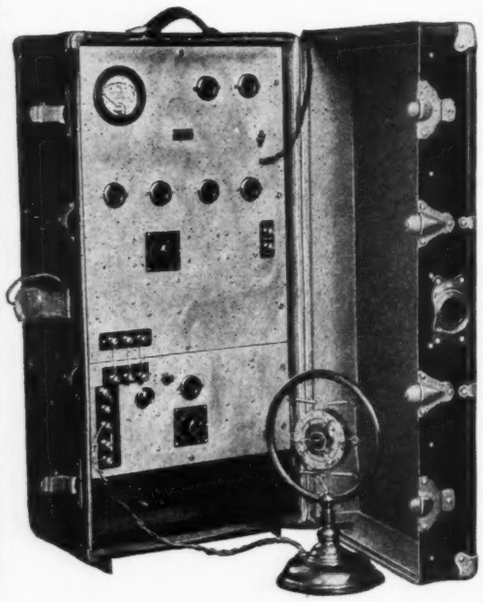
THE ONLY AUTO RADIO WORTH YOUR WHILE

DON'T WAIT FOR FURTHER PARTICULARS—
WRITE OR WIRE YOUR ORDER TODAY!

PIONEER RADIO MFG. CO.

2500 MARKET STREET SAN FRANCISCO, U. S. A.

No other Public Address System gives you all these features at such a low cost



Model PA-701. Price $290.00.

One glance will convince any engineer of its superior construction.

1. UX 250 pushpull output.
2. Impedance and transformer coupled amplification.
3. Four stage hi-gain circuit.
4. Current reading meter.
5. Rectifier designed for humless operation.
6. Flexibility of control.
7. Phonograph or remote control input provision.
8. Individual microphone gain control.
9. High and low impedance output provisions.
10. Low current consumption.
11. Total shielding—8 gauge aluminum panel.
12. Angle iron framework.
13. Convenient in size—massive in appearance.
14. Tremendous volume available.

Gates Engineers have been designing and building speech input equipment for ten years. The fact that today approximately one hundred fifty radio broadcast stations, fifteen universities and colleges, as well as many theatres, recording laboratories, army cantonments and government institutions are using Gates Equipment, is your assurance of the approval of the best engineers for dependability and quality.

You can have the same high standard of quality in

GATES PUBLIC ADDRESS SYSTEMS

For portable or permanent installations

Now is the time to equip Stadiums, Ballrooms, Hotels, Theatres, Schools, Churches, Skating Rinks and Auditoriums with equipment that will build you a reputation.

Write today for sales bulletin No. 25.

GATES RADIO & SUPPLY CO.

Manufacturing Engineers

QUINCY, ILLINOIS, U. S. A.

Radiotorial Comment

By The Editor

YESTERDAY'S famous two-fisted slogan "More business in government and less government in business" seems still to be a slogan—and nothing more. Almost every line of business has its complaint about government interference with the conduct of its affairs, thereby reducing the taxable income. And hardly a day passes without its evidence of unbusinesslike methods in the conduct of governmental affairs, thereby increasing the burden on the taxpayer. Nor is it necessary to cite such debatable propositions as the attempt at artificial control of commodity prices in order to prove the contention.

CONSIDER such a simple case as the purchase of transmitting tubes for the navy radio. Bids were recently invited on "the — brand of 250 type tubes or their equal." It is common knowledge that certain brands of tubes are dependable and that some other brands are likely to "go west" at critical times. One jobber submitted a bid of 40 per cent off list on one of the dependable brands. Another jobber quoted a longer discount on one of the not-so-good brands; it is reported that he got the contract. Consequently the navy may soon be in the market for another batch of tubes to replace those that have just been bought, whereas the good brand would probably last much longer.

THE FAULT lies, of course, in looseness of specification. It is possible to specify certain criteria as to construction and operating characteristics which will automatically separate the sheep from the goats. These specifications are readily available. Why does not the navy use them?

• •

WITH THE continuance of the business depression private businesses have instituted economies so as to avoid wasteful leaks. Buyers have become skeptical. Durability, not price, is the determining factor in a purchase. An unknown brand is tested or investigated before it is bought. Is there any good reason why the public's business should not be conducted as carefully?

Most radio dealers know that it is easier to get stung in buying tubes than in buying any other kind of radio equipment. All goes well so long as they stay with a brand that is backed by a reputable manufacturer. This backing not only means a well-made product but also the advertising and sales help that is now provided so as to interest the consumer.

BUT WHEN the dealer is tempted by a suspiciously long discount or too easy terms of payment, he thinks twice before accepting the proposition. He knows that poor tubes mean dissatisfied customers and the loss of good business. If he hasn't yet realized this, let him read elsewhere in these columns how cheap tubes built a reputation of cheapness for a big department store that is now "off cheap radio tubes for life," if it can live.

There is more truth than poetry in the couplet: "Of all sad words of tongue or pen, the saddest are these, I'm stung again." The wise dealer is cautious in his tube purchases.

CHEAPNESS is a relative term, whether applied to tubes or sets. All tubes are cheaper in price and better in quality than they were ten years ago. So are radio sets. This is partly the result of quantity production and partly the result of public demand. People are buying cheap things where they will not buy expensive things. 'Tis better business to sell a cheap set than not to sell an expensive one, so long as the public is in the mood for buying cheap things that are good.

• •

THE 325 thousand colored people who have asked the Federal Radio Commission to bar "Amos and Andy" from the air because of an imagined slur on their race, fail to realize that the popularity of this program is due, not to its characterization of the Negro, but to its characterization of universal human foibles. You and I recognize the thoughts and actions of ourselves or of some white acquaintance, rather than of any particular race. They are not picking on the colored man any more than they are picking on the Irishman, the Jew, the German or the Swede.

This program feature has helped to sell more radio sets than any other program on the air. To kill it, would be a blow to the entire radio industry.

This Little Pile of Tubes Nearly Wrecked This Big Department Store

A Tirade Against Bargains

Making An Example of One of the Strongest Department Stores in the West in Order to Prove that Radio Sets Cannot Be Handled Like Hats and Pillow Cases

« « « By P. S. LUCAS » » »

LET me start this harangue with the assertion that most large department stores in the United States are waking up to find their radio departments in the red. Perhaps we had better be more specific and say that most, if not all, of those large department stores which make it a practice to sell "bargain radios" are operating in the red. That minority that clings to what we in the radio business quite erroneously call "legitimate merchandising" is exempt from abuses that are to follow.

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WHY do people buy radio receivers from a department store? First, because of the bargains offered. Second, the department stores know how to advertise. Third, thousands already have accounts in one or more department stores. Fourth, they have confidence in their favorite department store. Fifth, the department store is more solicitous of its customer's welfare in financing the purchase. There may be other minor reasons, but these five are enough to make the exclusive radio dealer cast a worried look up the street where the big windows are causing a pause in the hurried procession of the shopping throngs.

What, then, is their excuse for failure? They have neglected to learn that the two mainstays of department store success, buying power and rapid turnover, do not apply to radio merchandising. The secret of success in the cloak department, the shoe department, the art department, the perfume department, and practically all other departments lies mainly in the ability of the buyer, or department manager, to scout around and pick up good buys; the total output of a manufacturer; a liquidated stock. The buyer buys at a remarkable price and turns around and sells at a low margin of profit, cleaning up the deal and starting in on another one. The costs of selling that merchandise are pretty accurately known in advance and the mark-up is figured accordingly.

There is nothing unique in the case of B. F. Schlesinger & Sons. From our own observation we should say that a substantial majority of the large department stores all over the country are finding themselves in the same boat. We are sorry to make Schlesingers' the scapegoat when almost any other store of similar size would have done as well. In order to get the material necessary to bring this object lesson to the readers of RADIO the editor had to get a job on Schlesingers' staff of servicemen. Schlesingers', we apologize. If we weren't so sure this story would have a lasting and beneficial effect upon radio merchandising we wouldn't run it.

The radio department consequently operates on the same time-worn department store principles; buy 'em cheap, sell 'em cheap. Mark 'em up just enough to cover the cost of operating the department and provide a profit. But it doesn't work. And instead of offering a lot of text book theories, let us walk into the radio department of B. F. Schlesinger & Sons, Oakland, California, and go to work. If you are a radio buyer or a salesman for a department store just change that name Schlesinger to the one that appears in the lower right hand corner of your pay check, and see if the story fits.

First meet Mr. Aabel, the buyer. That isn't the buyer's name, naturally, it was taken from the telephone book, page 1, col. 1, line 1. It would have fit the gentleman in question nicely, for our Mr. Aabel, no longer with Schlesingers', was one of the ablest department store buyers. If he had chosen any other line than radio he would be sitting on top of the world. Mr. Aabel is genial, courteous, gets splendid cooperation from his force, and has a nose for bargains like a newspaper reporter's nose for news. While he was with Schlesingers' his salesmen were coining money like bootleggers, and the deliverymen were wearing rubber off their tires like an amateur cartoonist off his eraser. Outside of the fact that Mr. Abel is a typical depart-

ment store buyer there is nothing in his make-up that can keep him from becoming a successful merchant, but, as I have stated, he chose the wrong line of merchandise. When dissatisfied customers would come into Schlesingers' radio department and ask for the manager, Mr. Aabel was never too busy to listen to their complaints, explain the situation to them, pat them on the back and send them off happy; for the time being, at least. Whether Mr. Aabel was entirely responsible for Schlesingers' colossal flop in the radio department or not I shall leave to my readers. It is difficult to say how long a department store buyer would last who never had any bargains to offer; especially so when you realize that the entire general's staff was made up of ex-buyers, dyed in the wool bargain hunters and bargain givers. I can readily imagine the cynical comments that would have issued forth from these men if the radio buyer bought his merchandise at a crumby 40% off the list and advertised his wares at the same prices his weak little competitor down the street was displaying.

By dint of clever scouting Mr. Aabel unearthed a supply of Kylectron radio receivers, the type with condenser speakers. The cabinets were beautiful, tone quality excellent, selectivity and sensitivity all that could be asked. They were built to list at $205. Aabel bought a carload and sold them at $89.50. I assume that his gross profit was enough to take care of sales and advertising costs and the normal amount of free service. But the very next day the service men began to run in with the story that those Kylectrons didn't stand up; condensers were shooting, resistors going flooey. Mr. Aabel listened to their pleas and promised not to buy any more. As the sets began to roll out of the warehouse like the proverbial hotcakes the temptation became too great, however, and he bought up another carload. That was ten months ago. Every Kylectron sold has since been serviced from two to sixteen (16) times, practically all of them without charge, even though only a sixty day guarantee was given. Independent servicemen have been put on the job at a dollar a call in order to supplement the regular staff. Many of the sets have been repossessed; the money paid on them refunded. Most disastrous of all, much customer confidence has been completely lost never to be regained.

As for the Kylectrons, the theory offered for their failure was that when the manufacturer started to go broke he bought up what parts he needed to go with what he had on hand, and cleaned up his shelves before raising the white flag. Once the eight or a dozen "bugs" had been cleaned out of them the customer couldn't ask for a better set. But that excessive free service and the loss of customer confidence cost Schlesingers' more money than the radio department will make for a long time. At present I understand the rubber in the condenser speakers is deteriorating.

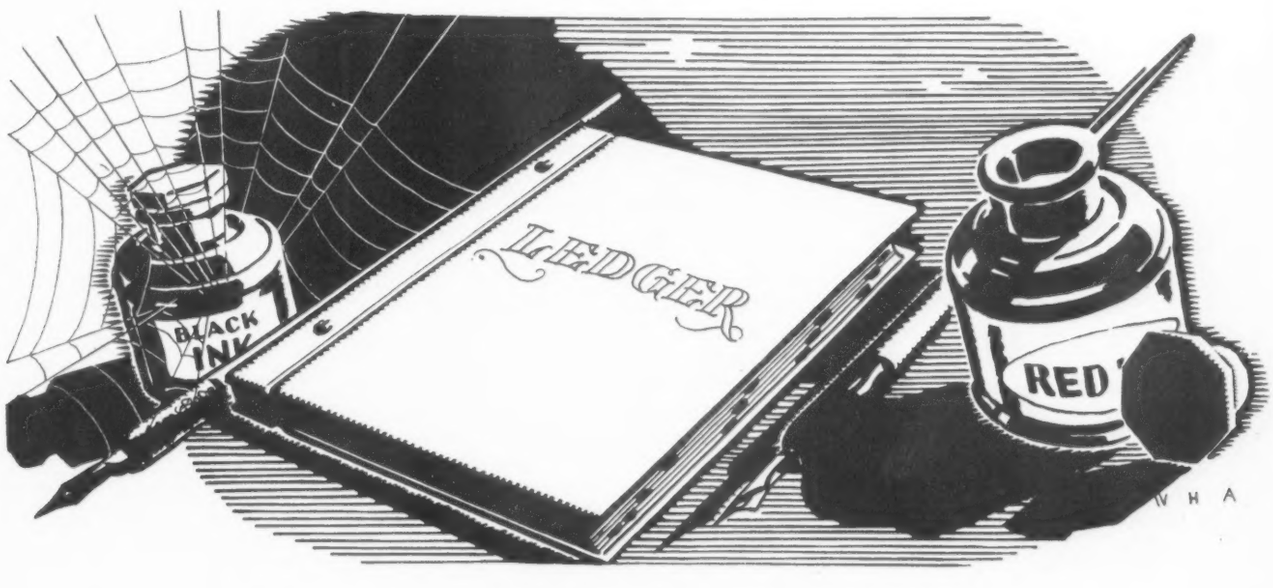
Now you ask how in the world Mr. Aabel could have been expected to know that the sets were full of "bugs." He couldn't, unless he was naturally suspicious. What should he have done about it? Bought standard merchandise, from a manufacturer that could stand back of it. Which brings up another view of the short sightedness of this buyer. The makers of the Kylectron, still manufacturing other equipment at that time, were induced to send out a batch of replacement resistors and condensers similar, in fact, identical to those used in the sets. They were free. Therefore the servicemen must needs use them as replacements instead of setting the store back more money by buying resistors and condensers which they knew would stand up. One more call per each. Free. One more missed program, one more kick, one more lost customer, one more neighbor turned against Schlesingers'.

Enough for the Kylectron incident, which is just one of several like it. A rather different case was that of the Balkeit receivers, of which Mr. Aabel sold hundreds. Here was a set that was well worth the price asked for it by the manufacturer, not to mention the ridiculous price tacked on it by Schlesingers'. Quite a few customers bought it mainly upon its ability to bring in the distance. It was sensitive and selective. And, probably as a result of that sensitivity, it was extremely critical of the tubes that were used in it. They had to match to a gnat's toe-nail. Mr. Aabel, however, was not a worshipper of fine technical points about a radio set or a tube, and as he had scooped in a fine lot of tubes for 70 and 10% he insisted that these Balkeits be sold with this type of tube. They were. They roared, they hissed, and they fried. Oscillations flew rampant through the different circuits of those receivers. The service men almost went wild. After trying to locate the trouble in everything from crystallized solder to unbalanced neutralizing circuits they finally discovered that, given a set of well known, reliable tubes; the kind people voluntarily ask for; a Balkeit is one darn good radio set.

"But," said Mr. Aabel, "we can't use those. We figured our mark-up with the tubes with the longer discount. If they don't work send 'em back and get 'em replaced."

And you can believe this or not, I'll go to a notary and swear that Mr. Aabel, after knowing what was causing the trouble, replaced the original tubes

(*Continued on next page*)



with more of the same kind. One dollar a call it cost him, again and again. Finally, I am pleased to announce, Mr. Aabel had had enough, and began to replace the cheap tubes with standard brands.

Don't think he learned his lesson, nor that his successor learned it. He gave in on the Balkeits but that was all. Take the shiploads of Radiovoxes that rolled out of that store. They, also, were sold complete with these famous 100% replaceable tubes. I happened to be on hand when the first shipment of these sets came in, almost simultaneously with the first shipment of these tubes, the name of which I shall withhold for fear of embarrassing a manufacturer not at all deserving of my consideration. The Radiovox was a midget receiver, o.k. as cheap midgets go, but not conducive to future patronage under any consideration. As I said, they were equipped with tubes, bought at a discount in the neighborhood of 70 and 10, or 70 and 10 and 10%. Outside of rattling of the cans the sets played all right, but the tubes faded out like stars at the break of day. Trying to be poetic I may have exaggerated that a bit, but the records show that over half the calls were tube calls; one dollar for the call, another for the tube; nary a penny from the customer if he was wise to himself and the credit department, and most of them were. And if you think those 100% replaceable tubes were ever replaced just go up to Schlesingers' service room, or to that of any other store that fell for that nonsense. There's enough vacuum up there to supply a dozen plans for overcoming the depression.

Many is the time that Mr. Aabel, fearing that he might get stuck with a heavy stock of distress merchandise, has instructed his salesmen to swing all sales to this type of set. People come in sold (by their friends or by advertising) on a well known set of standard make, and are perfectly willing to pay the list price for it. There may be but two or three of them in stock, while the warehouse is piled high with bargain sets in the process of being dumped.

"That's a mighty fine set," the salesman admits, "but the Kylectron (we'll use that one again, and offend as few as possible of our friends, the upstart manufacturers) is every bit as good." And in a few well chosen sentences he has convinced the customer that spending $175 for a radio set is like throwing water in a well, when a $49.50 set will give them the same service, same quality, same stations, same artists; that it's just as good in every way and maybe better. That's stupidity of the most insipid type. Blame it on your buyer, of course. Also blame it on your store for not realizing that the radio business cannot be handled like the shirt business. You can't blame it on the salesmen because the type that are able to make a success of that type of selling are usually blame proof. They talk so fast they never have time for thinking, or even listening to anyone else utter his thoughts. I might say they are unscrupulous, although that is a pretty hard word. On a job like that they become accustomed and hardened to disappointments, as long as it is only the customer who is disappointed. They make money in a big way, and it goes to their heads. They learn how to pick the prospect who has his hand in his pocket, and they scorn the timid lady who looks as if she would require fifteen minutes to make up her mind.

Customers will throw defective tubes right back at you, . . . just like they throw over-ripe eggs at ham actors. Poor tubes are the "ham actors" of radio.

THE SAME thing applies to tubes, although in this case the thing is not quite so brazenly shortsighted from their own standpoint because they sell the tube with the largest profit. I remember standing near Mr. Aabel, waiting for a word with him one day. He was talking to a customer who wished to buy a Balkeit, take it out himself and install it. The customer was evidently familiar with radio. He wanted Radiotrons, however, instead of the brand being furnished with the set and he offered to pay more for them. He said he understood that the list prices were the same but that the Radiotrons cost the store more than the others, and that he would gladly pay the difference. That was candidness, and certainly a fair proposition. But Mr. Aabel had evidently so completely convinced himself that the tubes he was supplying were superior to standard tubes (they say there are salesmen who can do that); or he was reluctant to admit that he was pushing something inferior merely for the longer discount; that he went to work and argued that customer into taking the inferior tubes. Although it has no particular bearing on the case it interested me to hear Mr. Aabel tell the customer that his friend, (the editor of "RADIO," but unknown as such to Mr. Aabel), and another man, a well-known radio technical writer, also with the store, insisted on the tubes he was pushing in preference to Radiotrons or any other brand, I was indeed flattered. I gazed at Mr. Aabel searchingly but his complexion didn't change the slightest.

I said he might have fooled himself on the quality of tubes. There was an order out, however, telling servicemen to make free replacements with cheap tubes but when the customer was to be charged for them never to use anything but one of the standard brands. I understand that since Mr. Aabel left Schlesingers' the servicemen have been instructed to use the cheap tubes wherever possible, whether the customer pays for them or not.

The attitude of the buyer and his

salesmen toward the customer naturally drifted down to the servicemen; those, at least, who stayed around the shop. To begin with the service manager was paid $125 a month while the outside men received $150 plus their car expenses. This caused dissatisfaction on the part of the shop men and resulted in friction instead of cooperation. While the best man should have been in charge of service, and paid accordingly. Mr. Aabel was shrewd enough to realize that under the circumstances the place for the best man was on the outside where he could meet the customer, inspire confidence in his opinions and ability, and leave her convinced that she really had bought a good set after all. Therefore the only qualification a shop man needed was inability to meet the public.

With these low salaried men holding down the fort on the inside, their main duties being to take care of the chasses brought in by the outside men, the store could not expect the results they should have had. The shop men got to feeling that since the customer bought a bargain radio, bargain service should be good enough for him. They assumed the same attitude that guided the salesmen. They therefore gave just what was needed and no more. I know of many cases when chasses were brought in to be checked for fading or some ailment that could not be found without playing it for awhile. The sets were turned on, allowed to run until the first strains of music began to vibrate the speaker, turned off again and marked O.K. Imagine the outside man's embarrassment upon being called back the next day after delivering it. Also remember that the extra call cost the store money.

In a job where the set went into a fading spell it was usually advisable for the service man to bring the tubes in with it, because the tubes were sometimes the cause of the trouble. When the chassis was ready for him the next day, or three or four days later, the tubes would be missing. Or, if it had come in with Arcturus tubes, say, it would go out with a couple of cheap ones. Just plain carelessness, in most cases, inspired by the attitude that the customer got more than his money's worth in the first place, and couldn't kick.

One cause for inefficiency in the service shop could, and was, laid at the feet of the buyer. Due to the rush of the service calls the service manager was unable to keep stocked up on replacement parts. The buyer insisted upon waiting for replacement parts from the factory instead of buying similar but more substantial parts locally. Therefore, while waiting, the service manager robbed new chasses of their parts, holding the incomplete chasses until the new parts arrived. At one time forty or fifty of them were sitting around waiting to be put together again.

As for the outside men, I learned from observation that most of them were doing as good a job as could be expected under the circumstances. Due to the many failures in the sets sold, however, all of them were given more work than they could efficiently handle. Many a day each serviceman went out with from twelve to sixteen calls in his pocket, knowing that he'd probably have that many more on the following day, and that these must be finished up at all odds. Now anyone who has ever tried to call on twelve or sixteen people in one day and fix their radio sets knows that, while it can be done, the serviceman can't loiter long enough to give the set the thorough check he'd like to. Upon following up some of these calls I learned that in nearly every case the customer had more respect for the serviceman than he or she did for the store. Most of them, by the third call, at least, had decided that they had been "gypped," no matter how hard the serviceman tried to convince them otherwise.

Another recourse the service department occasionally took in helping itself out of a tough situation was to replace a chassis that proved a "sticker," putting the impaired one aside to be reconditioned when there was time. Poor records were kept of these exchanges and the serial numbers got all balled up. If the store had to sue to get possession of a set and used the wrong serial number it would have been love's labor lost.

So far I have reported the buying, selling and servicing conditions that have gone toward putting Schlesinger's radio department in the red. I have pointed out the facts that too much free service during the usual free service period eats into the profits, and that free service demanded after the period is up completely devours what's left of the profit and then some. I haven't emphasized the most important result of selling questionable merchandise, the loss of customer confidence.

A great many customers come right back and tell the store what they think about it. Some refuse to finish paying for their sets; others make exorbitant demands of free service. Others take their medicine, quit buying from Schlesingers' and tell their friends about their experience. The latter reaction is far more fatal to the store than the first two, because if a customer can finally be satisfied, even though the store loses money on the job, he and his friends remain as customers, and it is surprising how much merchandise the average family buys from a department store during the course of a year. If the credit department had received only a small percentage of kicks from the horde of radio buyers it should probably have thought nothing of it, and taken the usual rather high-hat attitude toward the customer, insisting that he got a good receiver and was well served. But when the majority of customers begin to kick about being stung on their radios the credit department has no alternative but to concede that the customers *did* get hooked. Therefore, even when Mr. Allison, of Berkeley, comes in after ten months of good reception (this is an actual case) and demands free service on a shot by-pass condenser, what can the credit department do? Its confidence in the radio department is as badly shot as the by-pass condenser. Send a man out and fix it, no charge. The customer gyps the store, but the radio department brought it on itself. Another man had a Majestic for one year when his power transformer went out. He won his battle, getting a new transformer at less than cost and all the service free.

The situation got so bad that the servicemen became afraid to charge a customer for a job. If he did the customer might kick to the credit office, which would not only cancel that charge but refund all past charges. Sometimes, rather than stir the customer's wrath the serviceman would charge the bill to the customer's account without saying anything about it. Of course, as soon as he found it out, the customer kicked like a Model T Ford with the spark advanced.

Let's sum it all up. The radio department buys radio sets and tubes like the shoe department buys boots: cheap. It sells them cheap. The customer gets his money's worth but doesn't know it. Free service eats up the profits. The customer threatens to quit the store. The credit department loses confidence in the radio merchandise sold and gives the customer more than he is entitled to. Sets are repossessed and money refunded for the same reason.

At the beginning of this article I made the bold statement that a department store's radio department could not be operated on the same principles as the other departments, and here's why: A radio receiver, like an automobile, is bound to require some expert attention all during its normal life. It is probably the only merchandise sold by a department store that requires such attention. In order to keep the customer satisfied, and he must be kept happy if his business is to be retained for the other departments, *service requirements must be minimized!* And that means just one thing: the radio buyer must not yield to the temptation

(*Continued on page 32*)

This PRICE Question

By HOMER E. CAPEHART
President, The Capehart Corporation, Fort Wayne, Indiana

HOMER E. CAPEHART

I WISH someone would tell me why it is that the musical instrument industry cannot conduct its business, its advertising, its sales efforts and educational efforts along the same lines as other manufacturers.

Take the automobile industry, for example. You do not find Ford advertising that everybody should buy Fords just because they are low-priced. Neither do you find the Packard, Rolls Royce or Cadillac manufacturers advertising the fact and telling the public that the only thing they should buy is a Packard, a Rolls Royce or a Cadillac car.

They are smart enough to realize that there is a big market for both the high-priced automobiles and low-priced automobiles; also a big market for the price bracket in between.

Now about the radio business—anyone with sense at all knows that a laboring man making two or three dollars a day can only afford a midget radio. But how silly to advertise and to sell midgets and midgets only to the millions of people in America with tremendous incomes who will not and do not purchase the extremely low-priced merchandise in the other fields.

These millions of people with substantial incomes do not buy cheap furniture; they do not buy cheap diamonds; they do not buy cheap clothing; they do not buy the lowest priced automobiles. They buy *quality* merchandise but the poor musical instrument dealer and his salesmen have permitted the manufacturer to sell them on the idea that the only thing they should buy or sell is the lowest priced musical instrument made on which they cannot make a profit unless they are enjoying a nice volume of business *at the same time* on higher priced merchandise.

If I were a musical instrument dealer, I would sell both low-priced merchandise and high-priced merchandise but I would most certainly segregate my stock into a high-priced department and a low-priced department. I most assuredly would not permit my sales organization and advertising organization to canvass the millions of people on midget radios who can afford to buy higher priced merchandise.

The other day—I visited a clothing store and just the moment I entered the store, I was met by a snappy, wide-awake salesman who immediately escorted me over to the rack of $75.00 suits and sold me a $75.00 suit. While I was in the store, a young fellow came in and another salesman escorted him over to the rack of $25.00 suits. He sold him a $25.00 suit.

Had I stepped into the average musical instrument store anywhere in the land, they would have escorted me over to the $23.95 midget radio counter and sold me a $23.95 midget radio. Now, may I ask what is the trouble with this music industry of ours?

The trouble is not the public, the merchandise, or the price, but it is in the minds of the manufacturer, the jobber, the dealer and his salesmen.

There is a place for both high-priced and low-priced merchandise. Unless the musical instrument dealers of America learn how to sell both and *do sell* both, they are going down to defeat and there will be nothing left of this great and wonderful old musical instrument industry.

Every dealer should make a profit and it can not be done on midget radios alone. Raise your average selling prices. Sell higher priced merchandise along with low-priced articles and your profit figures should look better.

Exclusive Radio Tube Stores Report Replacement Business Increasing

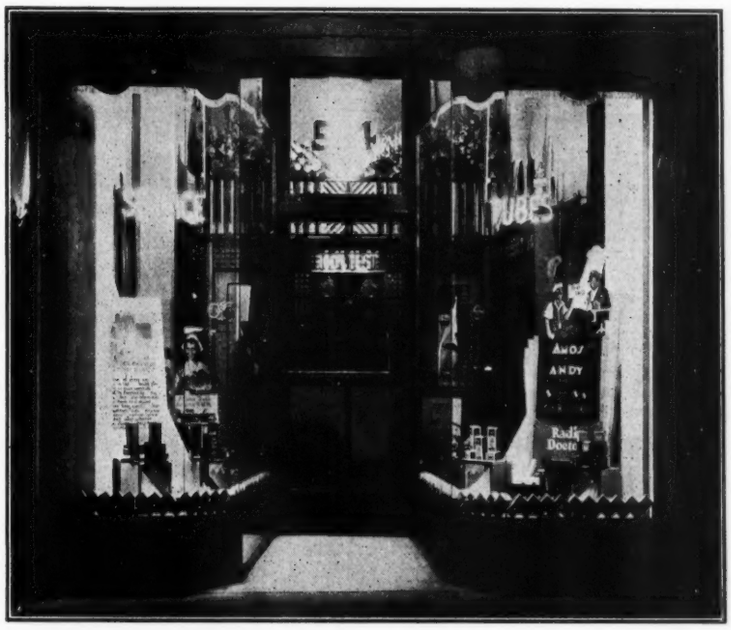
By L. P. Naylor

THE FIRST exclusive radio tube store of the West Coast was opened in San Diego, California, on August 22nd, by Angelo D'Angelo. Many suggestions regarding such an enterprise have been made by various people, particularly by men from the east who have learned by experience that a venture of this type successfully sells radio tubes and eventually becomes the center of radio tube information and monopolizes the consumer business.

Because radio tubes are the cause of a great percentage of service calls, the average dealer in a residential section has come to abuse the opportunity for selling new tubes in answer to a service call. Naturally, new tubes improve reception and the customer gladly pays and compliments the dealer for his service. This proves to be a costly method of purchasing tubes.

Very few radio dealers or service men make a study of tubes or tube problems. They consider the item as a necessary evil rather than the important factor in good reproduction. It is, therefore, right that the consuming public should show preference to the dealer who is a specialist—one who actually knows the construction and performance of the various elements which comprise a radio tube. This is just as essential as to take an automobile of some particular manufacture to a service station which knows its construction. A stomach specialist is of little consequence on a job where broken bones require repair. We would hardly go to an electric store for a bicycle saddle even though the particular store might sell bicycles.

L. P. NAYLOR
Sales Manager of Arcturus



Tubes . . . "Nothing Else But," in this exclusive store of Angelo D'Angelo. It is said to be the finest exclusive tube store in the country. Mr. G. Selzo is in charge of service; A. Misuraco its manager.

Mr. Angelo D'Angelo has a wide experience as manager of one of the more important New York tube testing stations. He knows radio tubes because he has studied them from the manufacturers' angle, both in the laboratory and factory. He is qualified to answer radio tube complaints and to serve as a radio "doctor" with respect to radio tubes.

"Radio Doctors" is the style which Mr. D'Angelo has selected for his enterprise and he has opened in the best down town location in the city of San Diego. He has a fine store in the new Watts Building, on E Street near Fifth.

Having specialized in Arcturus Blue Radio Tubes in the east, Mr. D'Angelo has elected to make this his leading radio tube in the new endeavor. He will also carry other lines such as Radiotron, Cunningham and CeCo.

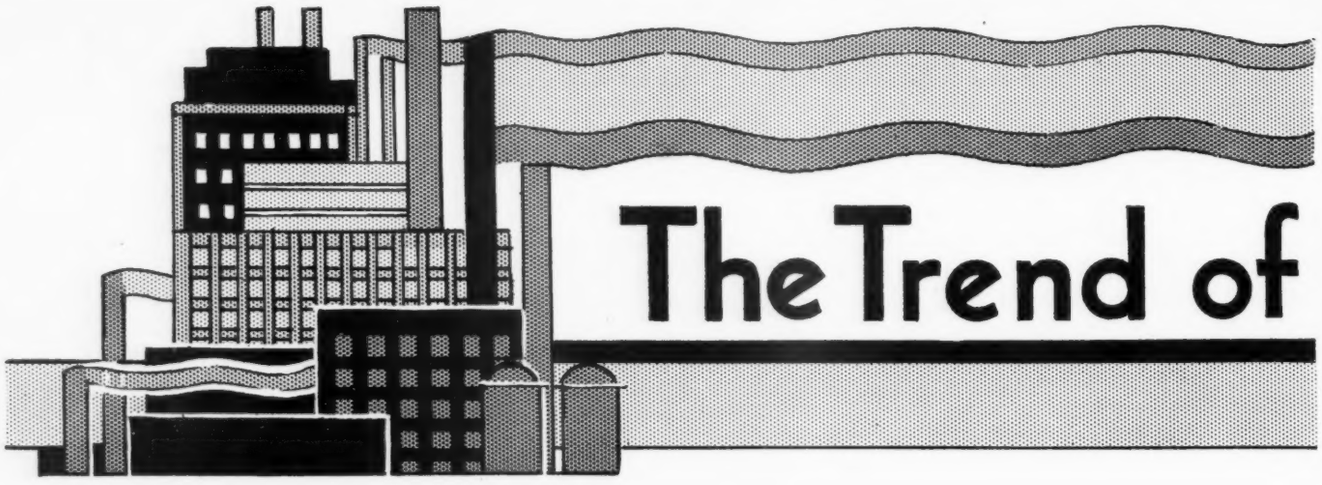
Mr. D'Angelo's progress will be watched carefully by the trade. Already several other companies are promoting thoughts along similar lines for other localities.

Arcturus Tubes Named After Star

THE STAR, Arcturus, leaped into prominence when officials selected it to open the 1933 World's Fair. This is a new use for the light from this distant star but it is not the first time that its name has been presented to the public. Ships, race horses and widely advertised products have made the name, Arcturus, known to millions of people.

Strangely coincident is the fact that while the star was discovered ages ago, its name figures very prominently in radio. The Arcturus Radio Tube Company of Newark, New Jersey, derives its name from this star which is 27,000,000 times greater than our sun in volume. Not only does this company utilize the name for its corporate title, but it also markets its radio tubes under the name Arcturus.

Since the color of Arcturus is blue, having a tinge of orange, this company has appropriately adopted this color scheme and manufactures a blue glass radio tube, making a complete tie-up with this star of the first magnitude, the fourth largest star in the heavens.



The Trend of

The Radio Business Shows Marked Improvement

F. A. D. Andrea, president and founder of the FADA Radio Company, said, "The increasing demand for the new line of FADA Receivers has resulted in another increase in production of over 100%.

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"After careful consideration of all factors entering into general business and the public attitude on such commodities as radio," says Mr. Grigsby, "it is my sincere and unbiased opinion that the approaching fall season will be one of the greatest that the radio industry has yet seen.

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R. W. Jackson, vice-president of the Brunswick Radio Corporation, New York City, sees public interest in radio increasing from every direction.

"Probably the main contributing element," he said, "is the fact that radio manufacturers are building into radio instruments a degree of musical quality heretofore not attained, and at a retail price that will be highly acceptable to the public.

"This procedure is in line with a definite readjustment going on now in all lines of business and when the public views, for the first time, the new acheivements of this great industry, they will realize that they are getting more than dollar for dollar value and in my opinion, the reaction will be most favorable."

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Powel Crosley, Jr., president of the Crosley Radio Corporation, Cincinnati, claims that these are normal times and manufacturers have to get after business—not wait for it to come to them.

"It is normal for people to work for what they get," Mr. Crosley remarked. "I believe that when things fall in our laps and business comes without effort, things are abnormal .Therefore, it behooves all of us—those in the radio business in particular—to forget that there was a time when people mobbed radio stores to buy radio apparatus, and, instead, to get out and work for business.

"He who sits and waits for business to come to him will be just 'out of luck' today. Too many people have not learned this lesson. Too many dealers are still sitting around waiting for business to fall in their laps. Hence we have hard times. So let's recognize our business methods; let's get out after business. He who works hardest will profit most."

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After a careful study of financial and economic data, H. C. Cox, president of the Columbia Phonograph Company, Inc., forsees business upturn within the next few months.

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H. E. Capehart, president of the Capehart Corporation ,of Fort Wayne, Indiana, sees the 1931-1932 season as an excellent period to supply the public's demand for quality merchandise.

"People have been saving money and waiting for better values," Mr. Capehart said, "and they are now available. Values are greater in radio today than ever before. With the proper presentation of a quality product at fair prices to the consumer, there is every reason to believe that the result will be quantity sales."

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Exports of radio apparatus of all kinds for June 1931 were valued at $1,581,140 compared with $1,366,959 for June 1930, reports the Department of Commerce. Six months total of this classification was $9,748,873 compared to $8,528,273 for same period in 1930.

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Warren Olney, Jr., Special Assistant to the Attorney General, stated that if negotiations are concluded whereby Radio Corporation of America and associates pool their patents for general use, the department would drop its suit under the Sherman Act against R. C. A.

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Armstrong Perry, director of the National Advisory Committee on Radio in Education, an organization endowed to carry on a campaign to reserve 15% of broadcasting channels for educational purposes, states "commercial interests appear to be responsible for statements that Europeans are dissatisfied with the programs in their own countries." If stations in this country were goverment controlled it is estimated each listener would be taxed eight dollars a year for the same quality and quantity of broadcasting, less advertising as at present.

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1,000 booths and six large halls were used for the annual radio show in Berlin which closed August 30. Two tube sets for about ten dollars were exhibited.

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Bell Laboratories have developed a new "dynamic" microphone weighing two and a half pounds with about three inch diameter and thickness.

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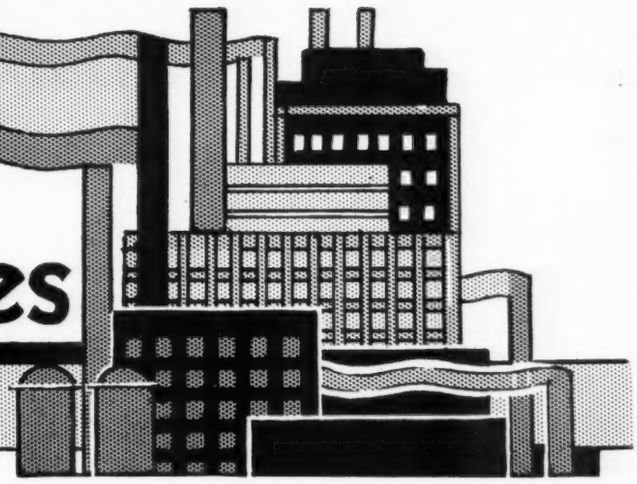
An increase of 120% in unit sales of Sylvania radio tubes is shown by cumulative sales reports for 1931, over sales for the corresponding period in 1930. Dollar volume of sales for the same period shows a gain of 94.3%, as announced by E. H. McCarthy, general sales manager of Sylvania division, Hygrade Sylvania Corporation.

A record shipment of 122,500 tubes on a single order was made from the factory on August 14th, but this record has been very closely approached in several previous shipments.

The Radio Times



A most favorable factor pointing to improvement in general business conditions is evidenced by information just released by The Capehart Corporation, Fort Wayne, Indiana, manufacturers of automatic phonograph-radio combinations.

At the close of the first six months operation this year, this company reported a net profit of $144,538.68 which represents a most substantial increase over the similar period in 1930. Inasmuch as the last six months of the year is considered as best from a sales standpoint an even better showing is anticipated during the remainder of the year.

The company is starting the new period with approximately $100,000 in unfilled orders on the books. With a brisk increase in business due to the introduction of attractive new models for the home, it is a most favorable indication of improvement in the retail trade of radio and musical instrument dealers.

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Out on the West Coast two of the old guard have established themselves in a two-story factory and commenced manufacture of automobile radio sets, pee-wees and mantel and clock type receivers. Feldstern and Silverman are the heads of the new company. The auto radio lists for less than $80.00 and is complete with tubes, dynamic speaker, battery box, batteries, suppressors, etc. The Utah remote control steering-post unit is used and the receiver has pentodes in push-pull. National distribution is contemplated and jobber connections are now being made. Pioneer Radio Manufacturing Co. is the name of the new concern.

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WABC engineers have developed a desk tuning device using a regular phone dial for executives to tune in any particular studio. Radio set manufacturers are reported experimenting application of a similar device for radio receivers.

Radio City, the $250,000,000 Rockefeller development in New York City covering more than one square block, to be devoted to opera, music, and radio broadcasting studios, is reported to have leased a quarter of the entire development space to Radio Corporation of America and its affiliates.

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Crosley Radio Corporation is soon expected to be operating on a capacity production schedule according to Powel Crosley, Jr., president of the organization, who stated that work on an initial production order of 50,000 of the new Crosley superheterodyne sets was now under way.

This initial production order for the new Crosley radio, which features an 8-tube push-pull pentode exponential or variable mu superheterodyne chassis, is said by Mr. Crosley to be the largest undertaken by the Cincinnati concern within the past two years. The retail value of this first production run, when completed, will total well over $3,000,000.00.

"The fact that this new line was hailed by our distributors at the recent factory showing as being not only the finest ever produced by us but also far superior both in quality and value to anything now in the field, along with the conviction that the bottom of the depression has been reached and that conditions will improve from now on, leads me to predict that our sales volume for the coming season will compare favorably with our peak years," declared the Cincinnati manufacturer.

Advance orders placed by distributors during the recent factory showing were said to total far in excess of those of any similar showing of new models since 1928.

The standard chassis used in these models is, according to Crosley officials, an outstanding development. It is an 8-tube push-pull pentode output superheterodyne type employing two pentode tubes connected in push-pull in the output stages, two exponential or variable mu tubes in the radio frequency and intermediate radio frequency stages, a '24 screen grid tube in the first detector stage, a type '27 in the second detector stage, a type '27 oscillator and a type '80 rectifier.

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Exports of electrical equipment for June 1931 were valued at $3,034,044, compared with $3,009,155 for June 1930.

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Dr. Julius Klein, Assistant Secretary of Commerce, states there are 20,000,000 homes in the country without radio sets.

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National Broadcasting Company, Radiomarine Corporation of America, R. C. A. Communications, Inc., and R. C. A.-Victor Company, subsidiaries of Radio Corporation of America, have joined the parent company in defense of the Station WTMJ appeal on Federal Radio Commission decision to renew some 1,409 transmitting licenses.

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Australia reports 329,134 licensed radio receivers; Canada 444,676 licensed receivers; Germany 3,719,594.

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A telegraphic report from George Hoppert of the International 16MM Pictures, Inc., says that the 16MM talkie film problem is now solved with the organization of his company, backed by the Mayers of film fame. Through 150 local exchanges a large library of films will be made available for dealers on a rental basis. A good variety of subjects is promised. The enterprise is to be conducted on a cooperative and profit-sharing plan and will include manufacture of equipment and production of feature films. Operations have already commenced and half of the 10th floor of the Film Center Building at 630 Ninth Ave., New York, has been engaged.

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Ohio reports 810,757 radio sets in operation in the state and 1,700,877 families, according to 1930 census.

Your Service Man should Learn how to Sell

⟦ Pass This Article Along to Him ⟧

The salesman finds it difficult to gain entrance. The woman of the house can pick him at a glance . . . and the door stays shut.

RADIO SERVICEMEN have objected vociferously to the small salaries they are paid, but how many of them are awake to the opportunities that are theirs just because they are radio servicemen? The thing that hurts their pride and pocketbooks most is the fact that they do all the sweating and get more than their share of condemnation while the salesman makes the money.

It is natural that salesmen, good ones at least, are well paid. It is they who make money for the boss, while the service man, due to the free service that goes with every set, does well if he can bring in enough for the boss to pay his salary. A man should be paid in proportion to what he can earn for the company, consequently the salesman has all the edge. All right then, why not become salesman? Don't give up your job as service man; you worked hard and spent a lot of money learning about the innards of radio receivers. Cash in, not by considering yourself lucky to get a job of fixing, but by taking advantage of that knowledge to get you into the home and gain the confidence of the customer. If you can sell as well as the company's salesman that stays down at the store and waits for the customers to stroll in, or the outside salesman who follows up elusive leads or pokes doorbells promiscuously, you have a better opportunity to prove it than either of them.

You have access to the home; the salesman ordinarily has not. The average housewife is so molested during her busy day that most of them have adopted the plan of sneaking to a window to see who ringeth. If it looks like a salesman, and they can pick 'em at a glance, the door stays shut and friend housewife tiptoes back to her ironing as the disgruntled salesman slips his card under the door. When the unsuspecting housewife does go to the door the chances are about one out of ten that the salesman doesn't get a chance to tell his story. That's why so many of them stoop to the tactics of sticking a foot into the door; also why they resort to high pressure salesmanship, completely confusing the prospect and getting the signature on the dotted line while the victim is still in a daze.

Yes, from a salesman's viewpoint the radio serviceman is endowed with wonderful opportunities. It is strange that more trained salesmen have not taken up the subject of servicing in order to avail themselves of these privileges, but of course they all dream of the job where they will be provided with all the prospects they can handle without having to go out in search for them. The thing for the serviceman to do is learn how to *sell,* read a book on the subject, take a correspondence course, listen to good salesmen manipulate their tongues. Most servicemen, like most everyone not actually in the selling game, seem to labor under the impression that they weren't cut out to be salesmen. They weren't. Except in rare instances people aren't cut out until they get their own shears. Any serviceman who has enough of a vocabulary to get what he wants at mealtime, and a pleasant enough personality to land his present job can learn how to sell if he has enough sincerity to slave away at it.

There are quite a few things you can learn about selling out of books, lots you can learn by observation and by studying yourself, but all of it must be supplemented by practice. You have an ideal chance for practice, one accompanied by a minimum of discouragement. You can work out on every customer and if you fail to put over a sale you are getting paid for what you went there for anyway. There are only a few elements of salesmanship I want to bring to your attention, then I'm going to turn by attention to some of the possibilities open to you. In the first place, don't be high pressure. You already have the prospect's attention and you already have her confidence. There is something she needs and

The service man has access to the home. Usually he is expected at a definite hour. Let him use this opportunity to make SALES for you.

needs badly; something that will give her more pleasure or make her duties lighter. There can't be one home out of a hundred thousand that is equipped with every modern convenience that a housewife would want or a husband would want her to have. It is said that four out of five radios now existent need new tubes; not one, but a whole new set. If her radio is three or four years old the chances are that a modern one would give her a great deal more pleasure. Don't disparage her old one, but tell her how wonderfully the science has advanced in the last three or four years, and ask her if you cannot have a modern set sent out for her to listen to. (And, for the love of Pete, be sure you don't send a set that is punker than hers ever was!) Work hand in hand on this job with the boss and the salesmen, if you think someone else in the store could handle a particular job better than yourself let him have it, and give him all the dope. Your boss will probably give you your commission anyway. And while we're on that point, give the boss a notation on every customer you try to sell something to. If you fail the first time, suggest that the boss follow up a little later, either by advertising or by a visit. You might keep a file for your own use, and if you think the customer will sometime become a prospect for something keep after her.

If the customer isn't a prospect for a radio how about a vacuum cleaner? Study up on the subject, and find out that those things can be used for clean-

(*Continued on page* 32)

NATIONAL RADIO WEEK

Here are suggestions which may be used in the creating of interest by the radio trade in your locality in National Radio Week. It is primarily to give you ideas as to just how interest can be created and to provide you with a certain number of activities that have been promoted successfully in other cities.

TIE-IN WITH THIS ANNUAL FEATURE

Every Dealer ShouldCo-Operate

NATIONAL RADIO WEEK, September 21-27, sponsored and promoted by the National Federation of Radio Associations for the past four years, is going to be a more auspicious event this year than ever before. The Radio Manufacturers Association and the National Association of Broadcasters have again endorsed and are promoting it in every way possible with their members.

The event will be promoted in several ways:

Display Material

Beautiful window streamers, posters, advertising mats, seals, etc., have been prepared by the executive offices of the association. Orders up to the present time involve over 25,000 of the streamers and posters, and it is reasonably expected the demand will far exceed that of 1930 when 40,000 streamers and posters were used.

Broadcasting

The cooperation of the two national chains has been requested to prepare one or more feature programs wherein artists, whose names will attract publicity and whose programs will be eagerly looked forward to by the listening public, will appear. Special releases will be sent to the trade associations and leading distributors giving the names of the artists and the time of the program as soon as the events have been definitely arranged.

The cooperation of the sponsors of chain programs has been requested to make some sort of announcement regarding radio and its 11th birthday, of a non-commercial nature, and several of the sponsors have already signified their intention of cooperating. It is believed that the number of chain programs dedicated to National Radio Week will double that of the thirty-three chain programs dedicated last year.

All of the broadcasting stations will be contacted for their cooperation within the next two weeks and it is confidently expected that more than three hundred and fifty broadcasting stations will carry frequent announcements on the value of owning a modern radio set during the week.

Above: Harold J. Wrape, Chairman, National Radio Week. Right: James Aitken, President, National Federation of Radio Associations.

Theme Thought

The theme thought that is being used in the preparation of all of the announcements is that of *Confidence in American Business.* With the large number of chain programs and such a large group of broadcasting stations making mention of National Radio Week in their programs, it is entirely fitting that the radio industry should create their announcements with the idea of stimulating the confidence of the listening public in American business and urging them to "Buy Now" all types of merchandise. We frankly believe that this will set in motion a successful attempt to relieve the business depression. No other association has ever had the forces at its disposal to create such a "Buy-Now Mindedness" as has the National Federation of Radio Associations in the promotion of this event. With the thirty millions of radio listeners hearing these announcements over the air, it is reasonable to assume that it will have a wonderfully stimulating effect on all business enterprises. The radio industry itself should cooperate with every other industry in capitalizing in every way on National Radio Week and in doing everything possible to bring business conditions back to normal.

Newspapers

News releases to newspapers have secured a wonderful acceptance this fall, and judging from requests received from editors and advertising managers, it is believed that well over 100 newspapers will create special radio sections for Radio Week. Many of them are planning on carrying large displays on the front pages of their radio sections, impressing upon the radio public the part radio plays in their everyday lives.

Manufacturers

Several manufacturers have purchased sufficient quantities of streamers for their distributing outlets and have already agreed to mention National Radio Week in all of their billboards, newspaper and magazine advertising and publicity releases. They are also arousing the trade in every way possible to cooperate and bring radio to the front this fall.

Local Associations

Local associations in many localities are observing National Radio Week this year as never before. Some are making a radio show as part of their National Radio Week observance. The executive offices have put out a pamphlet on the plans for National Radio Week which can be utilized by every local association.

Mr. Harold J. Wrape, president of the Benwood Linze Company of St. Louis, Mo., chairman of the National Radio Week committee, in cooperation with the other members, Messrs. J. Newcomb Blackman, Peter Sampson, Michael Ert, Harry Alter and H. G. Erstrom, executive vice-president of the association, have arranged these very carefully laid plans for the benefit of the entire trade and it behooves every radio man to cooperate.

Personal Contact Needed to Close Foreign Accounts

ROSS D. SIRAGUSA
President of TCA *(Clarion)*

Clarion Executives Tell How They Invaded The Foreign Market

« « «

A. J. HUNTER
Clarion's Director of Exports

RECOGNIZING the unlimited opportunity a well built radio would offer in the foreign field, Ross D. Siragusa, president of Transformer Corporation of America, immediately followed introduction of *Clarion* in this country by proceeding with arrangements for the sale of *Clarion* abroad. Mr. A. J. Hutter was appointed as director of exports, with Mr. Arthur E. Maybrun as department manager and Mr. F. San Roman Jr. in complete charge of the foreign sales promotion division. All have been closely identified with the exportation of radio since the early days of the industry and have achieved enviable records of results.

Conditions affecting radio reception in foreign countries were minutely studied, and plans were formulated to make the necessary changes in *Clarion* sets that would insure utmost efficiency of reception.

With this foundation the export division prepared a sales drive and surveys were launched in every market of the world. In the execution of this program, Mr. Hutter made his first extended trip throughout Europe in behalf of TCA, and he successfully concluded sales arrangements in a number of countries.

Samples were forwarded to foreign representatives immediately after the *Clarion* line was announced in this country.

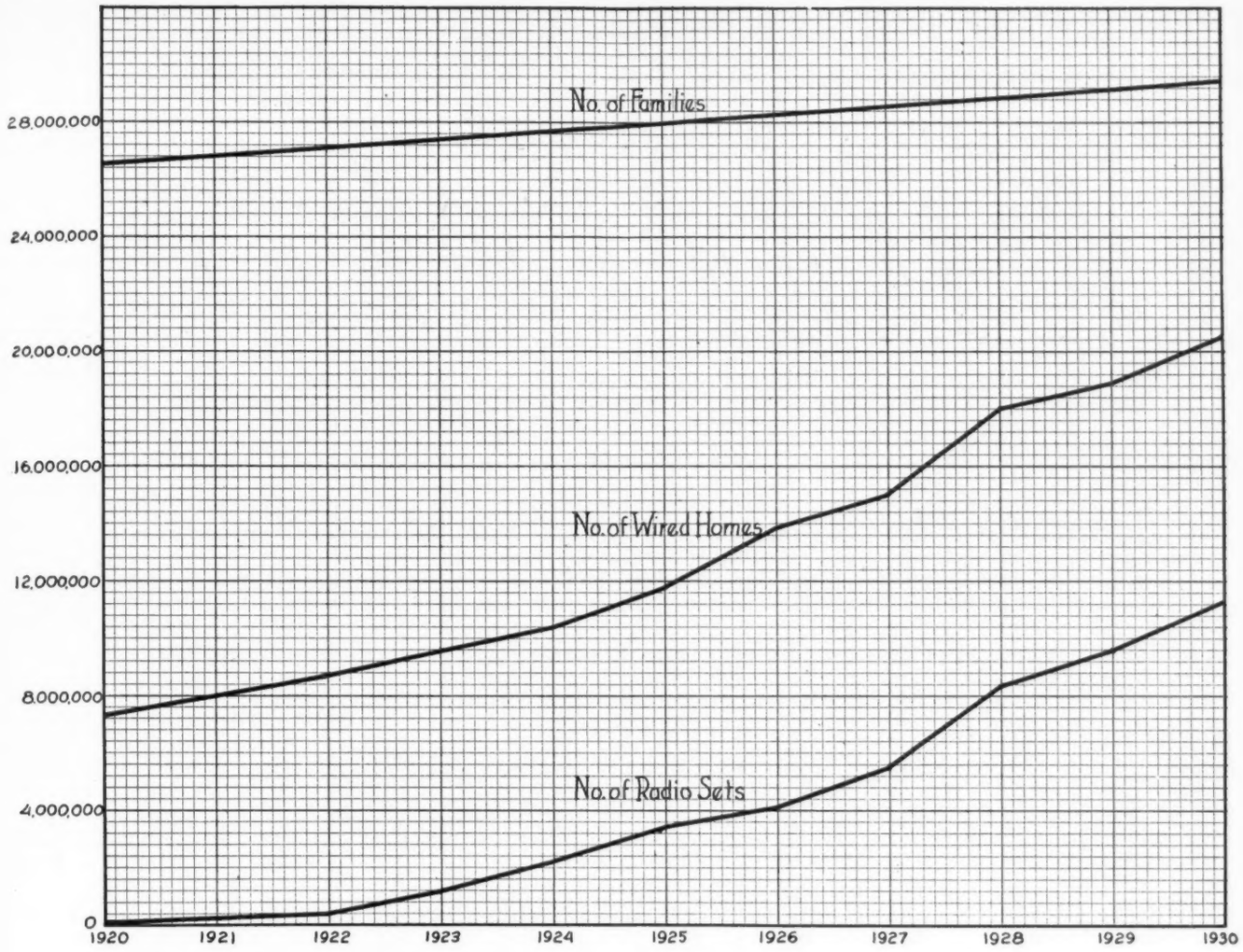
While these activities were taking place in the home office, Mr. Hutter was just completing his European tour. Merchants in Latin America, Mexico, Cuba, etc., applied for the line as the radio season was then at its height in those countries. However, the policy of the company demanded that distributors must be contacted by a personal visit before their appointment could be sanctioned. Personal contact in foreign countries, although costly, is essential for good and immediate results, and TCA strongly advocates this doctrine. Immediately upon Mr. Hutter's return, plans were made for a trip that would take him to the South American republics via Mexico and Cuba. Connections were established in these two latter countries. Cia Commercial Irca, Mexican distributors for *Clarion,* is responsible for four carloads of *Clarion* radios in less than three months.

Long-Distance Telephone Demonstration Brings Order « « » »

A long distance telephone demonstration from Chicago to Montevideo, Uruguay, a distance of eight thousand miles, was negotiated successfully. Reception at the TCA factory was transmitted to Casa Paradizabal in Montevideo, who, after listening, placed a sizeable order.

Clarion's spectacular preliminaties were witnessed in the Argentine, Brazil, Chile, Venezuela, Central America and the Antilles, also the Far East, and today these receivers are rapidly advancing to the forefront in all markets where they have been introduced. From the confines of Syria to the mystic lands of Confucius, down to the ardent soil of the Pampas, *Clarion* has become a byword for tone, sensitivity, selectivity, quality and contruction. Testimonials show *Clarion* reaching eleven thousand miles to bring to our friends in New Zealand the latest tunes of American stations, and in the romantic land of Spain the cadentious and tangoized music of the Cuban "danzon" is reproduced with realism.

In less than six months *Clarion* radios are being sold through a world-wide network of distributors covering the principal markets of the world. Mr. Hutter reports that, according to indications from the foreign markets, still more spectacular and gigantic success will be realized at the advent of our new *Clarion* line—an array of super-heterodynes of value, beauty, and unparalleled performance that will bring *Clarion* to the pinnacle in the export field.



Quick Reference Chart Showing Number of Wired Homes . . . Number of Families and Number of Radio Sets in Use from 1920 to 1930

Freed-Eisemann "Mighty Miniature"

GATES AMPLIFIER

THE GATES RADIO & SUPPLY COMPANY of Quincy, Illinois, offer to the radio broadcast station a new inexpensive, yet efficient, remote control amplifier.

This amplifier has been designed for use where only one microphone is required such as police, market and news broadcasts or small musical combinations. It uses a two stage transformer coupled circuit which employs the new dry cell tubes. A type 230 tube is used in the first stage and two 231 tubes are used in the final push pull stage. The frequency response is flat from 30 to 8000 cycles and a gain of 45 decibels is possible.

It is supplied in a nicely finished mahogany cabinet of metal design and room for all batteries is provided.

FREED-EISEMANN'S "Mighty Miniature"

The Freed Television and Radio Corporation presents the baby of its line—a four tube radio receiver utilizing an oversize tiny electro-dynamic speaker, a Variable-Mu, a Screen Grid, a Pentode, and a 280.

Gates Model 100-A Amplifier

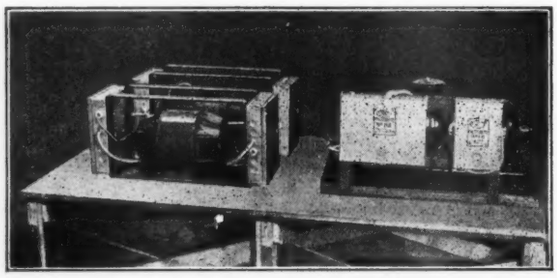
TOBE
Filterette

VOL. 2, NO. 9 SEPTEMBER, 1931 CANTON, MASS.

Suppressing Interference Created By Motor-Generators and Converters Not Used for Radio

Apparatus Used for Charging Batteries, Operating Arc Lamps, Electroplating, Etc., May Affect Radio Reception

ALTHOUGH the radio interference created by a motor-generator or a synchronous converter is usually most objectionable when the receiver affected is being supplied with alternating current from the converter or motor-generator, a great deal of interference may be created by this type of electrical apparatus when it is used for purposes wholly unrelated to radio. This interference is generally radiated from the D.C. and A.C. circuits connected to the converter and in some cases it is carried along the circuit to which the radio receiver is connected and may enter the receiver thru its power connection.



Photograph of a workman-like Filterette installation. Filterettes No. 221 and No. 131 applied to motor generators and synchronous converters supplying alternating current for radio and refrigerator demonstration in a department store.

Electric Refrigerators in D.C. Districts

This condition is most often encountered in D.C. districts when a direct current operated receiver is used in the same building with an electric refrigerator of the type employing a small D.C. to A.C. converter to supply alternating current to the motor which drives the compressor. In this case the interference originating in the D.C. circuit of the converter travels back along the building wiring to the radio receiver, entering the receiver thru its power connection as well as thru the antenna system.

As in the case with a converter used to supply alternating current to a radio receiver, the interference may be transferred both inductively and capacitively from the D.C. to the A.C. side of the converter. However, since the external A.C. circuit is usually limited to the refrigerator motor and a few feet of connecting cable and since the converter, the motor and the connecting cable are usually contained in the metal housing of the refrigerator, there is little probability that interference will be radiated from the A.C. circuit. Consequently a single Filterette, installed at the D.C. side of the converter, is usually sufficient to overcome the interference.

For this application an inductive-capacitive type Filterette is required. This Filterette may be Tobe Number 110, 221, or 131, the size of the Filterette being governed by the voltage and current requirements of the D.C. side of the converter.

Installation of Filterette

To be effective the Filterette must be connected in series with the power input leads to the converter and the Filterette return wire must be connected to a carefully cleaned part of the converter frame. All wiring should be carried in conduit which should be bonded to the Filterette case, the converter frame, and the metal frame of the refrigerator. If BX is used its sheath must be bonded to all metal parts of the installation with which it may come in contact. If this precaution is not taken considerable interference may result from the intermittent discharge of charges accumulated on the BX sheath.

Electric Refrigerators in Demonstration Rooms

Another instance in which the converter used in conjunction with electric refrigerators may cause radio interference affecting a radio dealer is found when such a dealer, having his display and demonstration rooms in a D.C. district, is located in the same building with a refrigerator dealer, or is, himself, selling electric refrigerators. In this case the converter supplying alternating current for the operation of the refrigerators is likely to be located at some distance from the refrigerator. Consequently there will be a considerable length of A.C. wiring in addition to the D.C. wiring from which interference may be radiated. The Filterette requirements of such a converter will therefore be an inductive-capacitive Filterette at the D.C. side, another at the A.C. side, and, if a voltage control rheostat is located in the demonstration room, a third Filterette in series with the rheostat leads at the converter. The Filterettes should be located as close as possible to the converter and should be connected in series with the D.C. and A.C. leads. (For a detailed description of this Filterette installation see the July issue of this magazine.)

Interference from Converter Used with Neon Sign

Radio dealers, having demonstration rooms in D.C. districts are likely to encounter radio interference created by the converters used to supply alternating current for the operation of Neon signs on their own or nearby buildings. As is the case with converter supplying current for refrigerator demonstration, the converter used with a Neon sign is generally located at some distance from the load being supplied. Therefore, the interference is radiated from both D.C. and A.C. leads and the Filterette requirements given in the preceding paragraph apply to converters used with Neon or other gas-tube signs.

Neon signs have often been held responsible for radio interference when, if the truth were known, the disturbance was created by the motor-generator or converter equipment used to supply alternating current to the sign transformer. A Neon sign in good condition should create no radio interference. If interference is reported the tubing and bushings should be carefully inspected and cleaned, and a check should be made to determine whether or not the sign transformer is connected to a converter which is responsible for the interference.

All of the preceding uses for converters or motor-generators affect only radio dealers or broadcast listeners in districts normally supplied with direct current. There are, however, other uses for converters or motor-generators, which may affect radio reception in towns and cities using alternating current.

Filterizing Motor-Generators Used for Charging Batteries

Motor-generators used for charging storage batteries are often responsible for considerable radio interference. In this case, the change is from alternating current to direct current rather than from direct current to alternating current as in the case of a motor-generator or converter used for operating a radio receiver in direct current districts. Due to the fact that the radio receiver is seldom in close proximity to the motor-generator set, and is but indirectly connected electrically to its circuit, it is generally a simple matter to suppress the interference due to the charging generator.

A motor-generator set used for battery charging may employ either a single phase or a three-phase motor. In either case the motor should not cause radio interference. The generator is responsible for the interference which will be radiated from the leads connecting the generator and the batteries and may also be radiated from the leads connecting the generator and the batteries and may also be radiated from the leads between the generator and its field rheostat. Some interference may be transferred capacitively from the D.C. circuit to the A.C. lines but the amount of interference thus transferred is usually so slight as to be negligible.

The type and number of Filterettes required for suppressing the interference will depend upon the manner in which the charging equipment is installed, and upon the proximity of the receiver to this equipment. In many cases the use of a Filterette number 20 connected directly across the armature terminals of the generator and having its return wire connected to a carefully cleaned part of the generator frame provides satisfactory reduction of the interference created by the generator. Usually there are three flexible leads brought out of the generator frame. These leads are marked "field," "armature" and "common" or "line." The Filterette should be connected across the armature and line leads and the connection should be made with the shortest possible leads. If the field rheostat is located at any appreciable distance from the generator it may be necessary to connect an additional number 20 Filterette from the generator terminal marked "field" to the terminal marked "armature." In other words, this Filterette is connected across the leads to the field rheostat. In rare instances it may be necessary to use an inductive capacitive type Filterette (Tobe Filterette number 221) in series with the generator output leads, and to apply a Filterette to the A.C. motor to suppress whatever interference might be capacitively coupled to the A.C. line. These instances, however, are so rare that they need not be considered at this time.

This month's Filterette Section concludes the description of filterizing motor generator and rotary converter equipment. A folder containing the entire series of motor generator and converter articles has been prepared, and will be forwarded to anyone requesting it of the Tobe Deutschmann Corporation, Canton, Mass.

Motor-generators used for battery charging are generally found in police or fire alarm telegraph stations, in telephone offices, in garages and in railway signal offices. The generator used for charging police telegraph or fire alarm system batteries usually delivers between 150 and 250 volts. Filterette number 20 is the correct type for application to this generator. The generator used for charging telephone or automobile batteries usually delivers from 60 to 100 volts. Filterette number 10 is the correct type of application to this generator. The generator used for charging railway signal system batteries usually delivers about 500 volts. Filterette number 60 should be applied to this generator.

Theatre Converters

There is one other piece of electrical apparatus used for obtaining direct current in alternating current districts which has been found to be responsible for considerable radio interference. This is the synchronous converter used in many motion picture houses. Since the direct current and alternating current are flowing in the rotor of this machine, the interference originating at the D.C. end is conductively transferred to the A.C. wiring of the building. It is, therefore, necessary to apply a Filterette at the A.C. end of this machine as well as at the D.C. end in order that the interference may be kept out of both the A.C. and the D.C. circuits. This Filterette may generally be a Tobe number 23, designed for application to three-phase apparatus, since the converter in most common use is operated from a three-phase, 200 volt line. The Filterette for use at the D.C. end of this machine is number 10, since the D.C. output is usually between 50 and 110 volts. On some occasions it may be necessary to use an inductive capacitive type at the D.C. end of the machine, in which case Filterette number 135, which is capable of handling 50 amperes, is recommended.

When motor-generator sets are used for obtaining direct current to operate motion picture equipment, it is generally sufficient to filterize the D.C. generator, since the capacitive transfer of interference to the A.C. lines is generally so slight as to be negligible.

The New SUPREME
"AAA1" DIAGNOMETER

By **FLOYD FAUSETT,** *Chief Engineer*
Supreme Instruments Corp., Greenwood, Miss.

THE AAA1 DIAGNOMETER is the result of many months experimental development to produce a new DIAGNOMETER of advanced design incorporating in one instrument all of the essentials heretofore required of a multiplicity of servicing instruments. The AAA1 (pronounced "triple A one") is new from stem to stern and is a combination of five service instruments built as a single unit which can be used as a portable radio laboratory, complete shop equipment, or mounted on the wall or back of a test bench as a test panel. Special brackets may be obtained with the DIAGNOMETER for wall mounting, which accommodate the slip hinges and snap lock on the DIAGNOMETER case. In this manner the AAA1 is instantly convertible from a portable laboratory to a complete test panel. The five major testing functions of this instrument are listed as follows:

1. *Analyzer.*
2. *Tube Tester.*
3. *Shielded Oscillator.*
4. *Ohmmeter.*
5. *Capacitor Tester.*

Each of these is described in the following paragraphs.

The Analyzer circuits of the AAA1 DIAGNOMETER consist of a universal AC and DC meter of the copper-oxide rectifier type with a tandem scale selector switch and a DC milliammeter which is always connected in the plate circuit. This arrangement provides plate current readings of circuits and tubes under analysis without the manipulation of any current switches while testing the various potentials of other circuits terminating at the tube sockets. In all tests therefore, the high voltage circuits remain unbroken thereby eliminating the possible damages from momentary circuits caused by the breaking of such high voltage circuits. Non-locking push button switches constitute a simple switching arrangement for properly connecting the meter to any of the universal analyzer plug and cable circuits, terminating at the tube sockets and associated pin jacks located on the panel.

The analyzer circuits are designed to meet all practical radio service requirements on all types of radios and tubes, including the new power pentode, Variable-mu, and two-volt radio tubes. Provisions are also made for test of the older type of battery operated radios, and the helium types of non-filament rectifier tubes. This instrument is also adaptable for an analytical AC voltage, 1000 ohms per volt, test up to 900 volts on each side of center-tapped plate supply transformers thru the rectifier tube socket. Provision is also made for the reading of the AC line voltage thru the AC line supply cord by means of a push button(external connections being unnecessary for this purpose. All of the circuit analyses of the radio receiver under test may be made during the actual operation of the radio, utilizing the regular power normally supplied, without disturbing any permanent connection of the radio under test.

Incidental to the introduction of the new Supreme Diagnometer AAA1 . . . "4 instruments in 1" . . . Supreme Instruments Corporation announce a contest that will cause service men throughout the Radio World to bestir themselves to perfect phrases with a punch that will effectively tell the story of this significant new Supreme Instrument.

A group of prizes will be given for the best letters on the subject "Why I Prefer a Supreme Diagnometer AAA1 for Modern Service." Capital prize is a brand new Supreme Diagnometer AAA1. Contest is open to *anybody*.

Full rules and regulations may be obtained from Supreme Instruments Corporation, Greenwood, Miss. Much emphasis is laid on the fact that literary style is not required to win, and that anybody who can tell the story most forcefully can be the lucky one. Contestants are advised to get a demonstration from their jobber.

Contest closes midnight, October 15. Judges to be disinterested persons of recognized standing. All data included in information mailed from Greenwood on request.

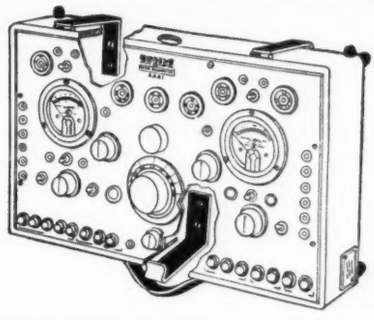
The Analyzer plug utilized in the AAA1 DIAGNOMETER is equipped with a snap catch arrangement for engaging the adapters preventing its becoming separated from the plug in radio tube sockets having tight fitting contacts. The RADIO DIAGNOMETER was the first testing device to introduce the use of an analyzer plug of this type. The analyzer plug utilized with the AAA1 DIAGNOMETER has an UY base as most sockets in the newer types of radios are of the UY or 5-prong type. A 4-prong adapter is furnished as part of the equipment for analysis on rectifier and on the older type UX sockets. The control grid lug is attached to the analyzer plug by a flexible lead which enables the operator to complete the control grid connections of screen grid sockets without difficulty in any type of radio. For the anticipated radio frequency pentode tubes a circuit is provided which terminates with the necessary terminal of the analyzer plug so that this terminal may be connected to a suitable adapter for these tubes upon their introduction and proper acceptance in the radio field. All test circuits and meter ranges are available for external use thru moulded bakelite covered pin jacks. Milliampere ranges of 0/3/9/30/90 and 300 mils and 3 amperes are available for external use for either AC or DC current, utilizing the copper oxide rectifier type meter and its associated scale selector switch. External DC voltage range of 2500 volts is provided in addition to the external AC and DC ranges of 0/3/9/30/90/300 and 900 volts. A 2700 ohm per volt high resistance DC voltmeter range of 0/200 volts is also available through external connections for testing automotive and aeroplane installations. The type multimeter used in the AAA1 DIAGNOMETER is a precision, portable copper-oxide rectifier type meter designed to accommodate alternating and direct currents and potentials with equal facility. The two major current and potential measuring scales of the meter are associated with the scale selector. The first two points of the scale selector correspond to these two ranges of the meter. High ranges are obtained by rotating the scale selector thru the high readings, the two major scales of the meter being multiplied by the values indicated by the scale selector. This meter is probably the most unique feature of the analyzer.

It is obvious that the ranges of this meter provides such unusual elasticity that there is small likelihood of any development in the radio industry ever requiring a major change in the AAA1 DIAGNOMETER. The Multi-meter is not in any analytical or tube checker circuit until a push button is depressed for the desired reading, thus affording a maximum of protection to the meter at all times. Actual tests have shown that this multimeter will stand a 3000% voltage over-load. The two range DC milliammeter is connected at all times in the plate circuits of the DIAGNOMETER. This arrangement provides simultaneous plate current readings in connection with the various analytical readings which are indicated on the multi-meter.

The black engraved bakelite panel of the AAA1 DIAGNOMETER measures 10½ x 17⅝". Permanent panel lettering and markings are provided for adequate identification of the various switches and connections. The seven tube sockets mounted on this panel are provided with positive contacts which will not lose their tension after many months of use. All pin jacks which are employed for external connections have insulated heads to prevent accidental short circuits and bodily harm from contact with the high voltage circuits sometimes encountered in analysis.

The tube checker circuits of the AAA1 DIAGNOMETER include five tube testing sockets, with the necessary switches for connecting the proper potentials to these sockets for tube tests. AC power supply potentials ranging from 100 to 240 volts may be utilized for these tests, a suitable selector switch being included for selecting the proper potential. A "filament-heater" selector switch is provided for all tubes having filament ratings from 1½ to 7½ volts. The grid potentials of the tube checker circuits are provided by voltage drop across a biasing resistor. This arrangement requires what is commonly known as grid test or mutual conductance index method. An oscillation test is also included for matching tubes for the radio frequency stages of radios. A gas test is provided for all amplifier type of tubes, indicating the gas content of the tube under test. A very ingenious arrangement has been provided for indicating the cathode-heater leakages of the cathode type of tube. In addition

The "last word" in a portable compact, complete laboratory is the Supreme AAA1 Diagnometer. A combined test panel and portable laboratory—mounts on the wall as easily as removing the lid.



to indicating whether or not the cathode is shorted to the heater of independent cathode type of tube, this arrangement provides indication of leakages which would not be indicated by an ordinary short tester.

In view of the fact that a primary selector is provided for adjusting the tube checker to the line potentials between 100 and 240 volts, elaborate tube testing tables are not required. The test readings of the various types of tubes are provided with the instrument. All of the potentials utilized in the tube tester circuits are available at external connections for any other tests which might be required.

Another valuable feature of the AAA1 DIAGNOMETER is the completely shielded and attenuated Oscillator which is designed for tuning over a range of approximately 90 to 1500 kilocycles. The harmonic tuning principle was first introduced by the Model 70 Oscillator and is now utilized in the DIAGNOMETER. Frequencies higher than 1500 kilocycles can be calibrated where desired.

The output of the oscillator can be controlled from its maximum to an absolute minimum. A pilot light is included on the panel of the DIAGNOMETER for indicating whether or not the Oscillator is in operation. A similar pilot light is arranged for the tube checker circuits.

THE OSCILLATOR potentials are completely isolated from all other parts of the Oscillator so that it is impossible for the user to obtain any electrical shock when using the DIAGNOMETER Oscillator. The Oscillator is modulated at the frequency of the power supply system.

A vernier tuning dial is used on the Oscillator which enables the user to obtain very fine adjustments in service work. A type 31 tube is used as the oscillator tube. For output measurements the multimeter, connected in series with the self-contained condenser, is used, providing a very wide range for output measurements.

The resistance measuring ranges of the DIAGNOMETER are indicated as the top scale of the multimeter of the DIAGNOMETER. External connections are provided for two ranges indicated as "low" and "high." The low range covers 0 to 3000 ohms, while the high range covers approximately 0 to 300,000 ohms. The self-contained 3-cell flash light battery is utilized with these two ranges and a zero corrector is provided for maximum accuracy. Provisions are made for utilizing an external 45-volt battery with the Ohmmeter circuit so as to have an indicating range from 0 to approximately 3 megohms. Provisions are also made for obtaining a potential of 250 volts direct current which may be utilized for continuity testing up to 15 megohms. The accuracy of the Ohmmeter ranges are in keeping with the standard commercial accuracy of resistors.

In view of the fact that the R.M.A. standardizing committees have recommended that by-pass condensers be tested with potentials of 250 volts direct current, this new DIAGNOMETER has provisions for applying 250 volts DC to paper condensers under test. Leakage up to approximately 4 megohms can be indicated very satisfactorily by this test. In addition to this leakage test of condensers, provisions are made for indicating the capacities of condensers from approximately .01 up to 1.0 mfd. Charts are provided with the instructions and included in the top of the DIAGNOMETER for determining the capacity of various sizes of condensers.

The AAA1 DIAGNOMETER is housed in a substantial hardwood carrying case, which combines a beautiful appearance with unusual wearing qualities. It is equipped with a slip-hinge cover with adequate compartments for the analyzer cable, power supply cable, test probes, small tools and all necessary accessories and may be readily removed when desired. This case is provided with a convenient handle for carrying, with rubber supports on the bottom and back side to prevent the marring of polished surfaces on which it may be placed. An opening is provided in the right hand side of the instrument tray for the insertion of an ordinary 3-cell flash light battery for use in tube testing and in making continuity tests. This battery compartment protects the battery against accidental short circuits from tools and positive spring contacts are provided so as to prevent loose battery connections which would cause discrepancy in tube testing and continuity tests. The over-all size of the AAA1 DIAGNOMETER is 6⅞ x 11¼ x 18⅜ and its weight is less than 24 pounds.

All parts of the DIAGNOMETER are thoroughly insulated so that no exposed contacts exist on the panel or on the associated parts. Every effort has been made to make the DIAGNOMETER as fool-proof and safe as possible. The power supply circuits are provided with fuses, and fuses are provided in the milliammeter circuits so as to minimize possible damage to the milliammeter. Special precautions have been made to prevent damage to any part of the DIAGNOMETER by the inadvertent insertion of shorted element tubes in the tube testing sockets.

All necessary accessories are included for use with the DIAGNOMETER, including analyzer plug, cable, power supply plug and cable, both of the latter being detachable from the same socket. Output adapters and test leads are included in the accessories. A very complete instruction booklet is included as well as an 85 page booklet of radio data which shows various analytical readings and circuits of various radios.

FLECHTHEIM CONDENSERS

To the amateurs belongs the credit for the development of short-wave radio communication. From a seemingly impossible set of circumstances, they strove with true American courage to win the acclaim and praise of the scientific world.

To A. M. Flechtheim & Co., Inc., of 136 Liberty St., New York City, goes the expression of thanks and gratitude of those amateurs, engineers, and radio men who recognize quality condensers of the highest type. For the Flechtheim company has led in the development of paper dielectric transmitting condensers and make a complete line from 1000 to 7000 volts.

Among the important types, type TH are very popular with amateurs, and for that matter, with the medium powered broadcasting stations. These condensers with a working voltage of 2000 volts D. C. (motor-generator), or 1600 volts rectified A. C. have proved their worth and excellence time and time again. It is a fact that over 50% of the broadcasting stations in the U. S. A. use Flechtheim Superior Condensers, and that more amateurs use these makes of condensers than any other manufacturer's products.

The filter circuit is responsible for the "hum" transmitter in "getting out," as it is highly essential that a pure D.C. wave form be emitted. It is here that Flechtheim condensers do their work effectively and with highest efficiency.

You can get the latest Flechtheim catalog by writing to the company at the above address and stating that you are a reader of "RADIO" Magazine.

SALES HELPS FOR DEALERS

Brunswick's Dealer Brochure

THE OUTSTANDING brochure of merchandising helps for the dealer comes from Brunswick in the form of a large 48-page portfolio of selling facts. A powerful presentation of the new Brunswick line is brought to the attention of dealer and consumer by means of this elaborately illustrated booklet. The manufacturing processes of Brunswick radio . . . photographs of Warner Brothers' picture stars . . . a section devoted to the display and description of all the new models and another section devoted to the pertinent points about Brunswick radio and radio-record instruments round out a manual of sales helps which will be of material assistance to every dealer. You can get a copy of this portfolio by writing to Brunswick Radio Corporation, 116-120 West 42nd Street, New York City.

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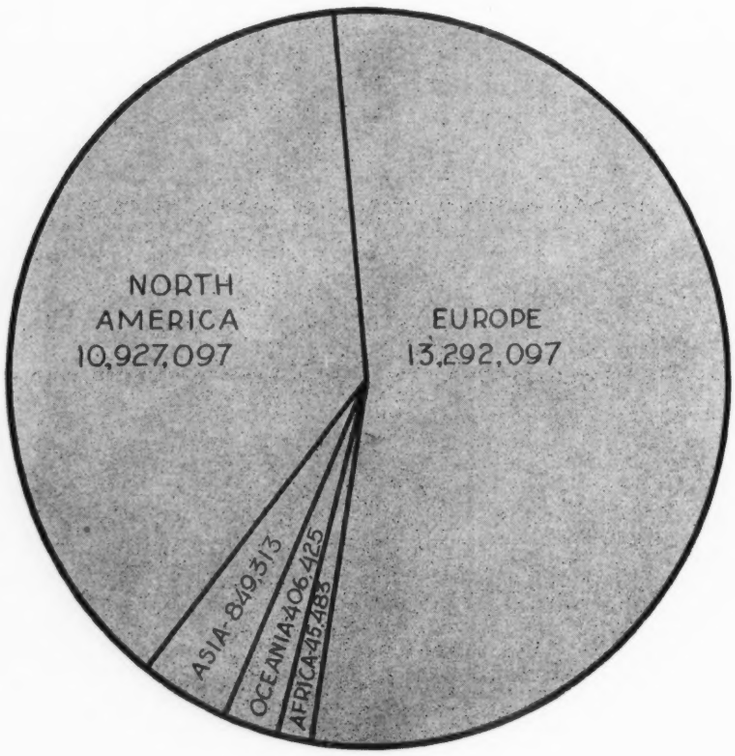
Magnavox Issues Engineering Data Books

ANYBODY who uses dynamic speakers will find a wealth of timely information in the new booklets by Magnavox. There is also a booklet available for those who are interested in electrolytic condensers and another booklet of facts on test methods for filter condensers. The latter is an exceptionally valuable portfolio of 30 pages of engineering data and will be welcomed by every manufacturer, dealer and service man. Copies of the three new Magnavox books can be secured from The Magnavox Co., 155 East Ohio Street, Chicago, Ill.

Statistical Information Showing Number of Radio Sets in Use Throughout the World

These are the official tabulations from the U. S. Department of Commerce, as of July 23rd, 1931



Additional copies of this Chart sent on request to subscribers.

◆ ◆

North America

Country	Receiving Sets in Use
Alaska	1,500
Bahamas	300
Barbados	250
Bermuda	700
British Honduras	82
Canada	284,580
Canal Zone	300
Costa Rica	250
Cuba	28,875
Dominican Republic	1,375
French West Indies	100
Greenland	25
Guatemala	250
Haiti	1,000
Honduras	86
Jamaica	250
Mexico	100,000
Miquelon and St. Pierre	100
Netherland West Indies	50
Newfoundland and Labrador	1,375
Nicaragua	50
Panama	300
Porto Rico	5,000
Salvador	1,000
Trinidad and Tobago	40
United States	10,500,000
Virgin Islands	50
	10,927,888

South America

Country	Receiving Sets in Use
Argentina	400,000
Bolivia	100
Brazil	190,000
British Guiana	25
Chile	35,000
Colombia	5,000
Ecuador	150
Falkland Isl.	16
French Guiana	8
Paraguay	150
Peru	70,000
Surinam	18
Uruguay	18,865
Venezuela	2,500
	721,826

Oceania

Australia	329,134
American Samoa	30
British Oceana	250
French Oceana	50
New Zealand	61,449
Guam	12
Hawaii	15,500
	406,425

Asia

Aden	10
Arabia	20
Ceylon	1,500
China	15,000
Chosen	12,000
French India	1,000
French Indo China	25
Hong Kong	1,760
India	7,682
Iraq	50
Japan	795,523
Kwantung	3,910
Macao	40
Netherland East Indies	1,000
Palestine	150
Persia	300
Philippine Islands	3,600
Siam	5,043
Straits Settlements	550
Syria	150
	849,313

WORLD TOTAL 26,243,032

Africa

Algeria	10,000
Angola	100
Basutoland	15
Bechuanaland	15
Belgian Congo	12
British Somaliland	8
British West Africa	75
Canary Islands	200
Egypt	500
Ethiopia	2
French Equatorial Africa	500
French Morocco	3,000
Italian Africa	250
Kenya	500
Liberia	5
Madagascar	150
Mozambique	100
Northern Rhodesia	50
Southern Rhodesia	150
Southwest Africa	50
Spanish Africa	150
Swaziland	15
Tanganvika	10
Tunisia	4,500
Union of South Africa	25,121
Zanzibar	5
	45,483

Europe

Country	Receiving Sets in Use
Albania	12
Austria	439,322
Azores	250
Belgium	69,437
Bulgaria	1,612
Czecho-slovakia	325,000
Danzig	16,000
Denmark	437,244
Estonia	15,869
Finland	106,559
France	2,000,000
Germany	3,241,725
Gibralter	150
Greece	1,500
Hungary	273,000
Iceland	3,500
Irish Free State	26,000
Italy	126,000
Latvia	36,300
Lithuania	12,000
Luxemburg	2,000
Madeira	180
Malta	250
Netherlands	253,527
Norway	60,000
Poland	230,000
Portugal	2,500
Rumania	40,000
Russia	1,000,000
Spain	550,000
Sweden	460,750
Switzerland	100,000
Turkey	7,500
United Kingdom	3,411,910
Yugoslavia	42,000
	13,292,097

New Models ✣ ✣ New Prices
Crosley ✣ ✣

CROSLEY "PLAYBOY"
8 Tube Super-Heterodyne with Push-Pull Pentodes

THE FRONT panel is of imported Oriental wood finished in two-toned effect and high-lighted. The solid side panels and arch top are of high-lighted walnut finish. Note, that instead of having a bent veneer panel continuing from the base at one side to the base at the other, the sides are solidly constructed. The curve is broken at each side so that the arch top is securely anchored into the solid side panels. The arch above the speaker grill is a darker shade of two-toned effect and is supported at the sides with overlaid and fluted pillars. The edges of the grill opening are coved and are darker than the other surfaces.

The *Crosley* PLAYBOY incorporates the new 8-tube Push-Pull Pentode output Exponential or Variable Mu, Superheterodyne chassis, and the latest type Crosley dynamic speaker. Dimensions: 17" high, 17⅛" wide, 10¼" deep.

Price $49.75 with tubes

$65.00 CROSLEY
8 Tube Super-Heterodyne "The Cheerio"

The *Crosley* CHEERIO incorporates the new 8-tube Push-Pull Pentode output Exponential or Variable Mu, Superheterodyne chassis, and the latest type *Crosley* dynamic speaker. Dimensions: 40" high, 23" wide, 10⅞" deep.

THIS CONSOLE CABINET IS 40" HIGH

Price $65.00 with tubes

CROSLEY "PLAYTIME"
8 Tube Super-Heterodyne

66¾" high.
Price $95.00 with tubes.

The New Echophones

Model 60 Echophone Superheterodyne. Seven tubes, including pentode and variable mus. Has Jensen dynamic speaker, tone control and phonograph jack. $53.75, complete.

Model 80 Echophone Superheterodyne. 8 tubes. Two pentodes in push pull. 3 variable mus. Preselector. Jensen speaker. Full vision dial, tone control, phonograph jack, 4 gang condenser. List price $69.50, complete.

Echophone's new Model 40, four tube pentode and variable mu mantel set with dynamic speaker and full vision dial. It lists for $32.75, complete.

Model 90 Echophone superheterodyne console, with the 8 tube chassis. Same specifications as Model 80. List price $89.50, complete.

Your Service Man Should Learn How to Sell

(*Continued from page 22*)

ing overstuffed furniture, the walls, spraying moth killer into the closets and crevasses of the chairs, waxing the floors, and a multitude of other handy things. You won't have time to make demonstrations of all these appliances, and you probably couldn't if you did, but you can get a specialist on the job and rake in the commission he will gladly pay you if you make the sale.

Electric washing machines, ironers, orange squeezers, heaters of various types, refrigerators; all those things are to be desired in the modern home. You have the opportunity to lay the groundwork; let the boss do the rest. You will be surprised to see how rapidly you are able to bring home about twice as much money as you could ever make as a radio serviceman. And you'll develop yourself for bigger and better jobs to come.

One thing you want to avoid. Don't become so completely absorbed in your salesmanship that you neglect your service work. our biggest asset as a salesman is the confidence you inspire in your customer while acting the serviceman. You gain that confidence by your deftness and skill with your tools and your apparent knowledge of what the deep, dark secret of radio is all about.

A Tirade Against Bargains

(*Continued from page 17*)

to buy cheaply and sell cheaply, as if he were buying and selling soup kettles. He must buy standard merchandise, well advertised, for no other reason than that he, the customer and the credit department will be assured of good service. This business of dumping, that has so completely upset the radio merchandising business in the last couple or three years, has hurt the store that dumps as much as the store that hasn't chosen or hasn't been able to dump. I think I am safe in saying that Schlesingers' have seen the light and are cleaning up the radio department. They expect to gradually try to regain the confidence of their customers by issuing hundreds of dollars worth of credits and by giving free service. If they accomplish it it will take years.

You may know department stores that are making money doing just what I have condemned. Well, up till a couple of months ago Schlesingers' thought they were making money, too.

CLARION
Model 84

Walnut cabinet. The dimensions are 40" in height; 12½" in depth and 22½" in width. Complete—ready to play, $69.50.

CLARION
Model 85

It is of high-lighted two-tone effect in walnut. Height 19¼"; *depth* 11"; *width* 16½". *Complete—ready to play* $49.95.

CLARION
SUPERHETERODYNES

Announcement has been made by Ross D. Siragusa, president of Transformer Corporation of America, that three new CLARION Super-Heterodyne Models are now in production. The new receivers are named Models 84, 85 and 94. Designed in 7 and 8 tube types.

1. **Pentode super-power amplifier.**
2. **Variable tone control permits shading of tone to suit individual taste.**
3. **The Model 94 is equipped with the Super-Sensitive Switch which materially aids in decreasing interference between stations.**
4. **The convenience of a Full Vision Dial is provided to permit ease in quickly tuning to a favored program.**
5. **Fading effects have been eliminated in Model 94, by an automatic volume control, which maintains uniform volume.**
6. **Three of the tubes in each model are the multi-mu tubes.**

CLARION
Model 94

The Model 94 is of high-lighted two-tone effect in rich walnut. Height 40"; *depth* 13½"; *width* 24½". *Complete ready to play,* $89.50.

Last Minute News

Dr. Lee DeForest is now vice-president of the American Television Laboratories, Ltd., of Los Angeles. Mr. James W. Garside, formerly president of DeForest Radio Company, is president of the new company which has applied for a television broadcasting permit for a 10,000 watt station.

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The St. Louis Radio Trades Association will conduct the Seventh Annual Southwest National Radio Exposition the week of September 21 to 26 inclusive, at the New Coliseum in St. Louis.

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"Freed - Eisemann television and radio equipment is being manufactured under a Radio Corporation of America license," Arthur Freed, noted pioneer and president of the Freed Television and Radio Corporation announced.

Mr. Freed said in part: "The "re-entrance of the trade name 'Freed-Eisemann' into the radio field which is now naturally devoting its research almost entirely to television, has caused many of the thousands of owners of receivers bearing this name to expect that we would contribute to television development the same stability that marked our radio pioneering efforts.

"Perhaps the best indication of public and trade confidence in 'Freed-Eisemann' is the fact that although our production is proceeding according to schedule a sizeable backlog of unfilled orders is rapidly accumulating. Television is here and thousands of dealers realize that unless they are prepared to offer it, business will go where it is available."

• •

Delco Radio Corporation has introduced a set particularly adapted to cruisers using ignition systems. It operates directly from the lighting batteries of the boat much the same as in an automobile. One of the reasons assigned for the effectiveness of the set is that it is cadmium-plated, making it salt-water and salt-air resisting and does not corrode as in the case of steel chassis or other metal chassis.

The set requires but a small aerial which can be conveniently placed in the smallest craft as in an automobile where very little space for an antenna is available.

• •

Radio Corporation of America stockholders as of June 30 this year numbered 93,000 says a report made public.

Clement Studebaker III, on June 25, purchased the Fricker-Irvine patents and patents pending on a unique system for suppressing inductive interference and minimizing fading and atmospherics from Wm. C. Grunow. Mr. Grunow retains a non - transferable license. Mr. Studebaker has also secured the services of R. H. Fricker, inventor, and Chas. C. Henry, who have conducted research on radio noise suppression for Mr. Grunow since January.

Research will be continued by the Studebaker Laboratories, Inc., located at 3206 North Clifton Avenue, Chicago, Illinois. The sole sales rights are vested in the DePree Sales Company, 1720 Mishawaka Avenue, South Bend, Indiana. The American production will be by the Patent Development Company, 216 West Ewing Avenue, South Bend, Indiana. The trade name, *Elimostat,* has been adopted to cover the parts for the system.

The Sonora Company of Canada, Ltd., Toronto, have secured a license to manufacture and sell the *Elimostat* in Canada. They have also contracted for the engineering services of the Studebaker Laboratories, which have been busily engaged in designing a set line for them. Their interference eliminator and receiver lines are expected to be announced shortly.

• •

The New York Telephone Company refused to lease wires or facilities for the transmission of voice and musical instrument entertainment in the home, says a complaint of Wired Music, to the Public Service Commission. Since these facilities are offered broadcasting stations from point to point, they have been called on to explain.

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United States Department of Commerce reports that the average list price of 1930 radio receivers is $87, as compared with $133 in 1929. Both estimates not including tubes.

• •

Electric Washing Machine sales for the first half of 1931 were 341,025 units as against 319,229 in the first half of 1930. Twelve percent more radio jobbers are now handling washing machines than at this time a year ago.

• •

Children of 47 States and the District of Columbia were reported to have improved 38 per cent in certain subjects after viewing educational sound films, with which the tests were made.

The Atlantic Seaboard and the Pacific Coast alone show gains in electric production.

• •

In keeping with the trend of the trade toward smaller midget receivers, The Rola Company announces a new Model F-5 specially designed for compactness and simplicity.

Its over-all diameter measures 6½", depth 3½", weight 3¼ lbs., effective cone diameter 5".

Because of its light weight and compactness this unit may be incorporated in the smallest of midgets.

• •

Formica Insulation Company report profit of $135,960 for first six months of 1931, compared with profit of $185,454 same period last year.

• •

Mackay Companies, now controlling Kolster report for first five months of 1931 a deficit of $1,171,525.

• •

"Time on the air" revenue for the first six months of 1931 of the National Broadcasting Company and Columbia Broadcasting System is reported to be $17,399,720.

• •

Harold J. Wrape, who pioneered the portable idea in radio sets and who was among the first to manufacture midgets, announces that his corporation (Trav-Ler Mfg.) has been licensed by RCA and is about to introduce a complete line of new receivers with superheterodyne circuit and priced from $29.95 to $89.50. There will also be a superheterodyne auto radio receiver, television receivers and combination television-radio sets. Kits, parts and accessories will also be manufactured.

• •

Brunswick Appoints New Distributor at Pittsburgh and Milwaukee

From the New York office of the Brunswick Radio Corporation comes the announcement of new distributor appointments at Pittsburgh and Milwaukee. This is in line with Brunswick's policy of branch operation at major points with distributor operation throughout other leading cities. The W. F. Frederick Piano Co. will handle the Pittsburgh territory with Mr. D. H. Conway in charge of the radio division, and the Morley-Murphy Co. will be in charge of the Milwaukee territory with Mr. C. E. Willert in charge of the sales

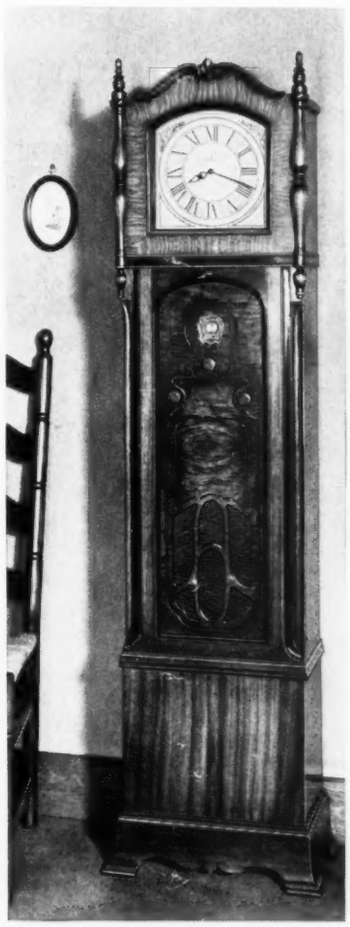
CROSLEY *announces* SERIES 124

8 Tube Push-Pull Pentode Output Exponential or Variable Mu . . . *Superheterodyne* Radio Receivers

The Crosley PLAYBOY

A table model of superior design and construction. The imported Oriental wood in the front panel is in two-tone effect and high-lighted. The arch top finished in walnut is solidly anchored into the side panels. Incorporates the Crosley dynamic speaker. Price..... **$49.75**

Complete With Tubes and Tennaboard



The Crosley PLAYTIME

A Grandfather electric clock model, incorporating the 124 chassis *plus* the Crosley Auditorium size dynamic speaker. Contains the finest synchronous clock movement. The cabinet is finished in genuine mahogany and walnut veneer. Price..... **$95.00**

Complete With Tubes and Tennaboard

The Crosley CHEERIO

An attractive console model finished in American black walnut and imported Oriental wood. The fluted pilasters are finished in two-tone effect, with overlay of imported Oriental wood. Incorporates the latest Crosley dynamic speaker. Price..... **$65.00**

Complete With Tubes and Tennaboard

The Crosley MERRY MAKER

The top and sides of this cabinet are of American black walnut veneer. The arch over the stump walnut veneer panel is of beautifully finished Oriental veneer. Incorporates the newest Auditorium size dynamic speaker. Price **$75.00**

Complete With Tubes and Tennaboard

The Crosley ANNOUNCER

The top and sides of this exquisite model are of American black walnut. The doors of matched stump walnut veneer open to disclose the front panel of Oriental wood arched with an overlay of bird's-eye maple. The Auditorium size dynamic speaker is incorporated. Price... **$85.00**

Complete With Tubes and Tennaboard

THE NEW Crosley 124 Series 8-tube Push-Pull Pentode, Exponential or Variable MU, Superheterodyne—is an entirely new line of radio receivers—newly engineered and designed—the talk of the radio industry. In addition to the Crosley Push-Pull Pentode Output Superheterodyne circuit and the new Crosley full floating moving coil dynamic speakers, these receivers incorporate many other recent developments: Exponential or variable MU tubes—continuous (stepless) static control—illuminated hairline shadow dial with vernier drive—continuous (stepless) variable tone control—combined volume control and on-off switch—Crosley Tennaboard (patent pending)—perfect tone and powerful undistorted output—astonishingly low prices with exquisitely designed cabinets, complete with tubes. The Crosley 124 Series is the outstanding hit of this radio season. So—climb aboard the Crosley band wagon. See your Crosley Distributor for demonstration. If you don't know the Crosley Distributor in your territory, write, wire or phone the factory.

Montana, Wyoming, Colorado, New Mexico and west, prices slightly higher.

THE CROSLEY RADIO CORPORATION

POWEL CROSLEY, Jr., *President* CINCINNATI Home of *"the Nation's Station"*—WLW

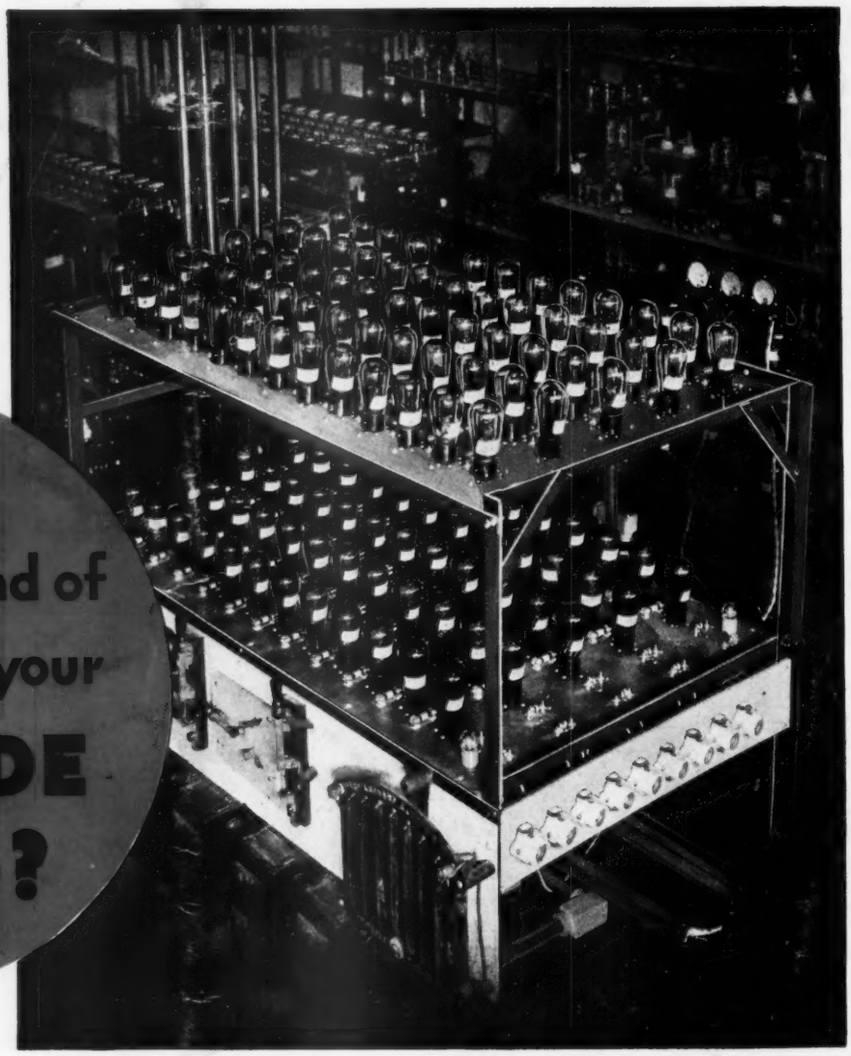
Also manufacturers of The CROSLEY ROAMIO Automobile and Motor Boat Radio Receiving Set and The Crosley Battery SHOW BOY Radio Receiving Set for the home.

YOU'RE *THERE* WITH A CROSLEY

CROSLEY RADIO

In this laboratory endurance test several hundred standard Arcturus Pentode Tubes are operated under conditions paralleling the most severe usage encountered in a radio receiver. Those tubes, up to the time of going to press, which have already exceeded the life expected from the best radio tubes, show that the important characteristics (including emission) of every tube are above the requirements for efficient performance. These tubes are periodically selected from actual production, and these results are representative of the consistent uniformity of Arcturus Pentodes.

W. B. Kahl
CHIEF ENGINEER



are you getting this kind of service from your PENTODE TUBES?

Remember National Radio Week, September 21-27

LABORATORY TESTS SHOW THAT ARCTURUS PENTODES GIVE THE SAME LONG LIFE AS TYPE '45 POWER TUBES OF THE BEST MANUFACTURE. LONGER MANUFACTURING EXPERIENCE EXPLAINS THIS EXCEPTIONAL ENDURANCE

The Arcturus Pentode Tube made possible many important radio improvements, and is performing efficiently in many of the country's leading radio receivers. With this better performance Arcturus Pentodes are giving the same long life that made the Blue Tube famous. Arcturus has been making Pentodes since 1928—more than a full year's extra experience to perfect manufacturing processes for this complex tube. That is the reason why the Arcturus Pentode Tube gives unusually long service—service that has proved most satisfactory to many of the leading manufacturers of today's Pentode Radio Receivers. That is the reason why Arcturus Pentodes are ranked as standard and used in laboratory tests by critical engineers. And that is why jobbers and dealers, to avoid expensive service calls, demand Arcturus Pentodes with their sets.

ARCTURUS RADIO TUBE COMPANY, NEWARK, NEW JERSEY

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